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Reference

FM 101-31-3

DEPARTMENT OF THE ARMY FIELD MANUAL

STAFF OFFICERS FIELD MANUAL NUCLEAR WEAPONS EMPLOYMENT



HEADQUARTERS, DEPARTMENT OF THE ARMY
FEBRUARY 1963

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FOREWORD

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FIELD MANUAL }
No 101-31-3 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., 1 February 1963

NUCLEAR WEAPONS EMPLOYMENT

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* This manual together with FM 101-31-1, 1 February 1963, and FM 101-31-2, 1 February 1963, supersedes FM 101-31, 20 July 1959, including C 1, 29 June 1961; FM 101-31 Modified, 15 September 1960; DA Pam 39-1, 20 May 1959; and DA TC 101-1, 8 December 1958, including C 2, 14 June 1960.

TABLE OF MAX R_T and MAX R_D (See notes.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
System	Range (m)		Yield (KT)	Exposed personnel targets				Protected personnel targets				Wheeled military vehicle targets		Tanks and arty targets	
	Min	Max		Prompt		Delayed		Prompt		Delayed		$R_{T_{max}}$	$R_{D_{max}}$	$R_{T_{max}}$	$R_{D_{max}}$
				$R_{T_{max}}$	$R_{D_{max}}$	$R_{T_{max}}$	$R_{D_{max}}$	$R_{T_{max}}$	$R_{D_{max}}$						
Short-range cannon	2,000	10,000	0.5	700	425	1,000	675	500	300	800	500	300	200	175	125
			1	900	575	1,200	775	650	400	1,000	575	400	250	250	150
Medium-range cannon	2,000	20,000	1	900	575	1,200	775	650	400	1,000	575	400	250	250	150
			2	1,000	625	1,400	900	700	450	1,100	675	550	350	325	200
Long-range cannon	3,000	30,000	2	1,000	625	1,400	875	700	450	1,100	675	550	350	325	200
			5	1,200	800	1,600	1,050	1,000	625	1,300	825	800	500	450	300
			10	1,400	875	1,800	1,175	1,100	700	1,400	925	1,100	650	600	375
			20	1,800	1,250	2,000	1,250	1,200	800	1,600	1,025	1,400	850	800	500
			50	2,800	1,650	2,800	1,650	1,400	925	2,000	1,175	2,000	1,225	1,200	750
Small free rocket	3,000	25,000	0.5	700	425	1,000	675	500	300	800	500	300	175	125	100
			1	900	575	1,200	775	700	400	1,000	600	400	225	200	125
			2	1,000	625	1,400	900	700	475	1,100	675	550	325	300	150
			5	1,200	800	1,600	1,050	1,000	675	1,400	825	800	500	450	275
			10	1,400	900	2,000	1,175	1,200	700	1,400	925	1,100	650	600	375
Large free rocket	7,000	40,000	5	1,200	800	1,600	1,050	1,000	625	1,400	825	700	400	350	225
			10	1,400	900	2,000	1,175	1,200	700	1,400	925	1,000	575	500	300
			20	1,800	1,150	2,000	1,250	1,200	800	1,600	1,025	1,300	800	700	400
			50	2,800	1,650	2,800	1,650	1,600	925	2,000	1,175	2,000	1,225	1,100	625
Light guided missile	10,000	50,000	100	3,600	2,175	3,600	2,175	1,600	1,075	2,000	1,300	2,800	1,625	1,600	925
			0.5	700	425	1,100	675	500	200	800	500	200	125	50	100
			1	900	575	1,200	775	700	400	1,000	600	250	175	150	125
			2	1,000	625	1,400	900	700	475	1,100	675	500	250	200	150
			5	1,200	800	1,600	1,050	1,000	625	1,400	825	800	425	350	225
Medium guided missile	50,000	150,000	10	1,400	900	2,000	1,175	1,200	700	1,400	925	1,000	575	500	300
			20	1,800	1,125	2,000	1,250	1,200	800	1,600	1,025	1,200	750	0	400
			50	2,800	1,650	2,800	1,650	1,400	925	1,800	1,175	2,000	1,150	900	550
			100	3,600	2,175	3,600	2,175	1,600	1,075	2,000	1,300	2,400	1,575	1,400	750
			200	4,800	2,875	4,800	2,875	1,800	1,150	2,400	1,450	3,200	2,025	1,600	975
Heavy guided missile	50,000	300,000	500	6,800	4,150	6,800	4,150	2,800	1,675	2,800	1,675	4,800	3,000	2,400	1,400
			200	4,800	2,875	4,800	2,875	1,600	1,150	2,000	1,450	2,800	1,725	1,000	975
			500	6,400	4,150	6,400	4,150	2,400	1,675	2,400	1,675	4,400	2,725	2,000	1,400
			1,000	8,800	5,475	8,800	5,475	3,200	2,100	3,200	2,100	6,400	3,750	2,800	1,850
			2,000	12,000	7,225	12,000	7,225	4,400	2,650	4,400	2,650	8,000	5,100	4,000	2,450
Fighter	N/A	800 KM	5,000	16,000	10,425	16,000	10,425	6,000	3,600	6,000	3,600	12,400	7,575	6,400	3,650
			5	1,200	800	1,600	1,050	1,000	625	1,300	825	600	325	150	225
			10	1,400	900	2,000	1,175	1,100	700	1,400	925	900	500	400	300
			20	1,800	1,125	2,000	1,250	1,200	800	1,600	1,025	1,200	750	600	400
			50	2,800	1,650	2,800	1,650	1,600	925	2,000	1,175	2,000	1,150	1,000	550
			100	3,600	2,175	3,600	2,175	1,600	1,075	2,000	1,300	2,600	1,575	1,400	750
			200	4,600	2,875	4,600	2,875	1,800	1,150	2,400	1,450	3,200	2,025	1,600	975
Tactical Bomber	N/A	1,200 KM	500	6,600	4,150	6,600	4,150	2,800	1,675	2,800	1,675	5,200	3,000	2,600	1,400
			1,000	9,000	5,475	9,000	5,475	3,600	2,100	3,600	2,100	6,800	4,025	3,600	2,075
			100	3,600	2,150	3,600	2,150	1,600	1,075	2,000	1,300	2,400	1,325	1,000	750
			200	4,800	2,875	4,800	2,875	1,600	1,150	2,400	1,450	3,200	1,725	1,400	975
			500	6,400	4,150	6,400	4,150	2,800	1,675	2,800	1,675	4,800	2,725	2,200	1,400
Strategic Bomber	N/A	2,000 KM	1,000	8,800	5,475	8,800	5,475	3,600	2,100	3,600	2,100	6,000	3,750	3,000	1,850
			2,000	12,000	7,225	12,000	7,225	4,000	2,650	4,000	2,650	8,400	5,100	4,000	2,450
			5,000	16,000	10,425	16,000	10,425	6,000	3,600	6,000	3,600	13,200	7,575	6,600	3,650
			1,000	8,000	5,475	8,000	5,475	2,400	2,100	2,400	2,100	5,600	2,975	1,600	1,850
			2,000	12,000	7,225	12,000	7,225	3,600	2,650	3,600	2,650	8,000	4,450	3,200	2,450
5,000	16,000	10,425	16,000	10,425	5,000	3,600	5,000	3,600	12,000	6,950	5,000	3,525			

NOTES: 1. All HOB options considered.
2. $R_{T_{max}}$ is largest target radius with average coverage of 0.4.
3. $R_{D_{max}}$ is largest probable minimum R_D tabulated.

NOTES: 1. All HOB options considered.
2. $R_{T_{max}}$ is largest target radius with average coverage of 0.4.
3. $R_{D_{max}}$ is largest probable minimum R_D tabulated.

Figure 11.

CHAPTER 1 SHORT-RANGE CANNON

1.1 GENERAL

a. *Orientation.* This chapter contains employment data for the short-range cannon.

b. *Weapon characteristics.*

(1) *Yield.* The short-range cannon can fire nuclear projectiles with yields of Alfa/0.5 KT and Bravo/1 KT.

(2) *Fuzing.* The nuclear projectiles for the short-range cannon have an airburst fuzing capability. The projectiles are fuzed by time fuzes which are set for the desired time of flight by the delivery unit. These projectiles do not have a contact surface fuzing capability. If a projectile impacts, it can be expected to break up and become a dud.

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The minimum and maximum ranges of the short-range cannon nuclear projectiles are 2,000 meters and 10,000 meters.

(2) *Tactical system accuracy.* The horizontal and vertical dispersion errors for the short-range cannon are dependent on range. Tactical system accuracy data are contained in figure 1.8.

(3) *Unit carrying capacity.* Not a limitation in this case.

(4) *Response time.* The times shown below can be used as a basis for general tactical planning. They are applicable to a reasonably well-trained unit operating in daylight under favorable weather conditions. Blackout operations, unfavorable weather, enemy interference, equipment breakdown, or faulty test indications will extend the times listed. *For detailed tactical planning, the response times should be the actual times obtained from the artillery unit concerned.*

Situation	Time (minutes)
I ¹	20
II ²	3

¹Situation I (high readiness)—the complete round and delivery system are in a firing position and survey is completed. Preliminary firing data for a specific target are not available. (May be used to engage target of opportunity.)

²Situation II (maximum readiness)—the round is positioned, fuzed, and ready to fire. Firing data for a specific target have been computed and applied to the weapon system. The firing unit is in a "do not load" status awaiting the order to fire. (Typical of readiness to engage on-call target.)

(5) *Special considerations.* The target analyst needs no special information from the unit fire direction center for target analysis. The fire mission to the unit includes the desired height of burst in meters.

SRC 1

EXPOSED Personnel Targets **Short-Range Cannon**

LOW Airburst
Precludes fallout

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED <i>In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.</i>																Probable minimum R_D (meters)		Offset distance d_o (meters)	Height of burst (meters)
		PROMPT CASUALTIES								DELAYED CASUALTIES											
		Target radius (meters)								Target radius (meters)											
		500	600	700	800	900	1,000	1,100	1,200	400	600	800	1,000	1,200	1,400	1,600	1,800	Prompt	Delayed		
2,000	1,500	.6/.7	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.7	.4/.4	.2/.3	.2/.2	.1/.2	.1/.1	425	675	30	42
3,000	1,600	.6/.7	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.7	.4/.4	.2/.3	.2/.2	.1/.2	.1/.1	425	650	45	51
4,000	1,600	.6/.7	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.7	.4/.4	.2/.3	.2/.2	.1/.2	.1/.1	425	650	55	59
5,000	1,600	.6/.7	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.7	.4/.4	.2/.3	.2/.2	.1/.2	.1/.1	425	650	70	68
6,000	1,600	.6/.7	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.7	.4/.4	.2/.3	.2/.2	.1/.2	.1/.1	400	650	85	77
7,000	1,600	.6/.7	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.7	.4/.4	.2/.3	.2/.2	.1/.2	.1/.1	400	650	95	86
8,000	1,700	.6/.7	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.7	.4/.4	.2/.3	.2/.2	.1/.2	.1/.1	400	650	110	94
9,000	1,700	.5/.7	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.7	.4/.4	.2/.3	.2/.2	.1/.2	.1/.1	400	650	125	103
10,000	1,700	.5/.6	.4/.5	.3/.3	.2/.3	.1/.2	.1/.2	.1/.1	.1/.1	.9/.9	.8/.9	.6/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1	400	650	135	112

Figure 1.1a(1).

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.																Probable minimum R_D (meters)		Offset distance d_o (meters)	Height of burst (meters)
		PROMPT CASUALTIES								DELAYED CASUALTIES											
		Target radius (meters)								Target radius (meters)											
		400	500	600	700	800	900	1,000	1,100	400	600	800	1,000	1,200	1,400	1,600	1,800	Prompt	Delayed		
2,000	1,500	.8/9	.6/7	.4/5	.3/4	.2/3	.1/2	.1/2	.1/1	.9/9	.8/9	.6/7	.4/4	.2/3	.2/2	.1/2	.1/1	400	650	30	102
3,000	1,600	.8/9	.6/7	.4/5	.3/4	.2/3	.1/2	.1/2	.1/1	.9/9	.8/9	.6/6	.4/4	.2/3	.2/2	.1/2	.1/1	400	650	45	111
4,000	1,600	.8/8	.6/6	.4/5	.3/3	.2/3	.1/2	.1/2	.1/1	.9/9	.8/9	.6/6	.4/4	.2/3	.2/2	.1/2	.1/1	400	650	55	119
5,000	1,600	.8/8	.6/6	.4/5	.3/3	.2/3	.1/2	.1/2	.1/1	.9/9	.8/9	.6/6	.3/4	.2/3	.2/2	.1/2	.1/1	400	650	70	128
6,000	1,600	.7/8	.5/6	.4/5	.3/3	.2/3	.1/2	.1/2	.1/1	.9/9	.8/9	.6/6	.3/4	.2/3	.2/2	.1/2	.1/1	400	650	85	137
7,000	1,600	.7/8	.5/6	.3/4	.2/3	.2/3	.1/2	.1/2	.1/1	.9/9	.8/9	.6/6	.3/4	.2/3	.1/2	.1/2	.1/1	375	650	95	146
8,000	1,600	.7/8	.5/6	.3/4	.2/3	.2/3	.1/2	.1/1	.1/1	.9/9	.8/9	.6/6	.3/4	.2/3	.1/2	.1/2	.1/1	375	625	110	154
9,000	1,700	.7/8	.5/6	.3/4	.2/3	.2/2	.1/2	.1/1	.1/1	.9/9	.8/9	.5/6	.3/4	.2/3	.1/2	.1/2	.1/1	375	625	125	163
10,000	1,700	.6/8	.5/6	.3/4	.2/3	.2/2	.1/2	.1/1	.1/1	.9/9	.8/9	.5/6	.3/4	.2/3	.1/2	.1/2	.1/1	375	625	135	172

Figure 1.1a(2).

EXPOSED Personnel Targets **Short-Range Cannon**

BRAVO/1 KT

LOW Airburst.
Precludes fallout

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED <i>In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.</i>																Probable minimum R_D (meters)		Offset distance d_o (meters)	Height of burst (meters)
		PROMPT CASUALTIES								DELAYED CASUALTIES											
		Target radius (meters)								Target radius (meters)											
		600	700	800	900	1,000	1,100	1,200	1,300	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	Prompt	Delayed		
2,000	1,800	.8/.8	.6/.6	.4/.5	.3/.4	.3/.3	.2/.3	.2/.2	.1/.2	.8/.8	.6/.6	.4/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	575	775	30	53
3,000	1,800	.7/.8	.6/.6	.4/.5	.3/.4	.3/.3	.2/.3	.2/.2	.1/.2	.8/.8	.5/.6	.4/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	575	775	45	57
4,000	1,800	.7/.8	.6/.6	.4/.5	.3/.4	.3/.3	.2/.3	.2/.2	.1/.2	.8/.8	.5/.6	.4/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	575	775	55	65
5,000	1,800	.7/.8	.6/.6	.4/.5	.3/.4	.3/.3	.2/.3	.2/.2	.1/.2	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	575	775	70	74
6,000	1,800	.7/.8	.6/.6	.4/.5	.3/.4	.3/.3	.2/.3	.2/.2	.1/.2	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	575	775	85	83
7,000	1,800	.7/.8	.6/.6	.4/.5	.3/.4	.3/.3	.2/.3	.2/.2	.1/.2	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	550	775	95	92
8,000	1,900	.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.3	.2/.2	.1/.2	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	550	775	110	100
9,000	1,900	.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.3	.2/.2	.1/.2	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	550	775	125	109
10,000	1,900	.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.3	.2/.2	.1/.2	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	.1/.1	550	775	135	118

SRC 1

Figure 1.1b(1).

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

Range	Minimum safe distance (negligible risk, UnW Ex)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.																Probable minimum R_D (meters)		Offset distance d_o (meters)	Height of burst (meters)
		PROMPT CASUALTIES								DELAYED CASUALTIES											
		Target radius (meters)								Target radius (meters)											
		(meters)	(meters)	600	700	800	900	1,000	1,100	1,200	1,300	600	800	1,000	1,200	1,400	1,600	1,800	2,000		
2,000	1,800	.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.3	.2/.2	.1/.2	.9/.9	.8/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	550	775	30	123
3,000	1,800	.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.3	.2/.2	.1/.2	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	550	775	45	132
4,000	1,800	.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.3	.2/.2	.1/.2	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	550	775	55	140
5,000	1,800	.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	550	775	70	149
6,000	1,800	.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	550	775	85	158
7,000	1,800	.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	550	750	95	167
8,000	1,900	.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	525	750	110	175
9,000	1,900	.6/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	525	750	125	184
10,000	1,900	.6/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	525	750	135	193

Figure 1.1b(2).

¹Short-Range Cannon.

PROTECTED Personnel Targets Short-Range Cannon

LOW Airburst
 Precludes fallout

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.																Probable minimum R_D (meters)		Offset distance d_o (meters)	Height of burst (meters)
		PROMPT CASUALTIES								DELAYED CASUALTIES											
		Target radius (meters)								Target radius (meters)											
		300	400	500	600	700	800			500	600	700	800	900	1,000	1,100	1,200	Prompt	Delayed		
2,000	1,500	.8/.8	.5/.6	.3/.4	.2/.3	.1/.2	.1/.1			.8/.8	.6/.7	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	300	500	30	42
3,000	1,600	.7/.8	.5/.5	.3/.4	.2/.3	.1/.2	.1/.1			.8/.8	.6/.7	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	300	500	45	51
4,000	1,600	.7/.8	.5/.5	.3/.4	.2/.2	.1/.2	.1/.1			.8/.8	.6/.7	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	300	500	55	59
5,000	1,600	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1			.7/.8	.6/.7	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	275	500	70	68
6,000	1,600	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1			.7/.8	.6/.7	.4/.5	.3/.4	.2/.3	.2/.3	.1/.2	.1/.2	275	500	85	77
7,000	1,600	.7/.8	.4/.5	.2/.3	.2/.2	.1/.2	.1/.1			.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	275	475	95	86
8,000	1,700	.6/.8	.4/.5	.2/.3	.1/.2	.1/.2	.1/.1			.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	275	475	110	94
9,000	1,700	.6/.8	.4/.5	.2/.3	.1/.2	.1/.2	.1/.1			.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	275	475	125	103
10,000	1,700	.6/.7	.3/.5	.2/.3	.1/.2	.1/.1	.0/.1			.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.2	250	475	135	112

Figure 1.2a(1).

HIGH Airburst
 Reduces intensity of induced contamination. Precludes fallout.

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.																Probable minimum R_D (meters)		Offset distance d_o (meters)	Height of burst (meters)
		PROMPT CASUALTIES								DELAYED CASUALTIES											
		Target radius (meters)								Target radius (meters)											
		300	400	500	600	700	800			500	600	700	800	900	1,000	1,100	1,200	Prompt	Delayed		
2,000	1,500	.7/.8	.4/.5	.2/.3	.2/.2	.1/.2	.1/.1			.8/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	275	475	30	102
3,000	1,600	.7/.8	.4/.5	.2/.3	.1/.2	.1/.2	.1/.1			.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	275	430	45	111
4,000	1,600	.7/.8	.4/.5	.2/.3	.1/.2	.1/.1				.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	275	450	55	119
5,000	1,600	.6/.8	.4/.5	.2/.3	.1/.2	.1/.1				.7/.8	.6/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	250	450	70	128
6,000	1,600	.6/.7	.3/.5	.2/.3	.1/.2	.1/.1				.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	250	450	85	137
7,000	1,600	.5/.7	.3/.4	.2/.3	.1/.2	.1/.1				.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	250	450	95	146
8,000	1,600	.5/.7	.3/.4	.2/.3	.1/.2	.1/.1				.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.2	.1/.2	.1/.2	225	450	110	154
9,000	1,700	.5/.6	.3/.4	.1/.3	.1/.2	.0/.1				.7/.8	.5/.6	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.2	225	450	125	163
10,000	1,700	.4/.6	.2/.4	.1/.2	.1/.2	.0/.1				.6/.8	.5/.6	.3/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.2	200	450	135	172

Figure 1.2a(2).

PROTECTED Personnel Targets Short-Range Cannon

BRAVO/1 KT

LOW Airburst
Precludes fallout

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.															Probable minimum R_D (meters)		Offset distance d_o (meters)	Height of burst (meters)	
		PROMPT CASUALTIES								DELAYED CASUALTIES											
		Target radius (meters)								Target radius (meters)											
		400	500	600	700	800	900	1,000	1,100	400	600	800	1,000	1,200	1,400	1,600		Prompt			Delayed
2,000	1,800	.8/.8	.6/.6	.4/.5	.3/.3	.2/.3	.1/.2	.1/.2	.1/.1	.9/.9	.8/.8	.5/.5	.3/.4	.2/.2	.1/.2	.1/.1		400	575	30	53
3,000	1,800	.8/.8	.6/.6	.4/.5	.3/.3	.2/.3	.1/.2	.1/.2	.1/.1	.9/.9	.8/.8	.5/.5	.3/.4	.2/.2	.1/.2	.1/.1		400	575	45	57
4,000	1,800	.8/.8	.6/.6	.4/.5	.3/.3	.2/.3	.1/.2	.1/.2	.1/.1	.9/.9	.7/.8	.5/.5	.3/.4	.2/.2	.2/.2	.1/.1		400	575	55	65
5,000	1,800	.8/.8	.6/.6	.4/.5	.3/.3	.2/.3	.1/.2	.1/.2	.1/.1	.9/.9	.7/.8	.5/.5	.3/.4	.2/.2	.1/.2	.1/.1		400	575	70	74
6,000	1,800	.7/.8	.5/.6	.4/.4	.3/.3	.2/.3	.1/.2	.1/.2	.1/.1	.9/.9	.7/.8	.5/.5	.3/.4	.2/.2	.1/.2	.1/.1		400	575	85	83
7,000	1,800	.7/.8	.5/.6	.4/.4	.3/.3	.2/.3	.1/.2	.1/.2	.1/.1	.9/.9	.7/.8	.5/.5	.3/.3	.2/.2	.1/.2	.1/.1		400	575	95	92
8,000	1,900	.7/.8	.5/.6	.3/.4	.2/.3	.2/.3	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1		375	575	110	100
9,000	1,900	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1		375	575	125	109
10,000	1,900	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1		375	575	135	118

SRC 1

Figure 1.2b(1).

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.															Probable minimum R_D (meters)		Offset distance d_o (meters)	Height of burst (meters)	
		PROMPT CASUALTIES								DELAYED CASUALTIES											
		Target radius (meters)								Target radius (meters)											
		400	500	600	700	800	900	1,000		400	600	800	1,000	1,200	1,400	1,600		Prompt			Delayed
2,000	1,800	.8/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1		400	575	30	123
3,000	1,800	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1		375	575	45	132
4,000	1,800	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1		375	575	55	140
5,000	1,800	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1		375	550	70	149
6,000	1,800	.7/.8	.5/.6	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.3/.3	.2/.2	.1/.2	.1/.1		375	550	85	158
7,000	1,800	.7/.8	.5/.6	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.2/.3	.2/.2	.1/.2	.1/.1		350	550	95	167
8,000	1,900	.6/.8	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.2/.3	.1/.2	.1/.2	.1/.1		350	550	110	175
9,000	1,900	.6/.8	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.2/.3	.1/.2	.1/.2	.1/.1		350	550	125	184
10,000	1,900	.6/.7	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1		.9/.9	.7/.8	.4/.5	.2/.3	.1/.2	.1/.2	.1/.1		325	550	135	193

Figure 1.2b(2).

¹Short-Range Cannon.

MATERIEL Targets
Short-Range Cannon
LOW Airburst
Precludes fallout

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.																Offset distance d_o (meters)	Height of burst (meters)		
		WHEELED VEHICLES									TANKS AND ARTILLERY										
		Target radius (meters)								Prob min R_D (meters)	Target radius (meters)						Prob min R_D (meters)				
		100	150	200	250	300	350	400	450		100	150	200	250	300						
2,000	1,500	.9/.9	.9/.9	.7/.8	.5/.6	.4/.4	.2/.3	.2/.2	.1/.2	200	.8/.9	.5/.6	.3/.3	.1/.2	.1/.1				125	30	42
3,000	1,600	.9/.9	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	200	.7/.9	.4/.5	.2/.3	.1/.2	.1/.1				100	45	51
4,000	1,600	.9/.9	.8/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.2	.1/.2	175	.5/.8	.2/.5	.1/.3	.1/.2	.0/.1				75	55	59
5,000	1,600	.9/.9	.8/.9	.6/.8	.4/.6	.3/.4	.2/.3	.1/.2	.1/.2	175	.3/.6	.1/.4	.0/.2	.0/.1					50	70	68
6,000	1,600	.9/.9	.8/.9	.6/.7	.4/.5	.3/.4	.2/.3	.1/.2	.1/.2	175	.2/.5	.0/.3	.0/.2	.0/.1					50	85	77
7,000	1,600	.8/.9	.7/.8	.5/.7	.3/.5	.2/.4	.2/.3	.1/.2	.1/.2	150	.0/.4	.0/.2	.0/.1						25	95	86
8,000	1,700	.7/.9	.6/.8	.4/.6	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1	150	.0/.3	.0/.2	.0/.1						0	110	94
9,000	1,700	.5/.8	.4/.7	.2/.5	.1/.4	.1/.3	.0/.2	.0/.2	.0/.1	75	.0/.2	.0/.1							0	125	103
10,000	1,700	.2/.7	.1/.6	.0/.5	.0/.3	.0/.3	.0/.2	.0/.1		50	.0/.2	.0/.1							0	135	112

Figure 1.3a(1).

HIGH Airburst
Reduces intensity of induced contamination, Precludes fallout.

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.																Offset distance d_o (meters)	Height of burst (meters)		
		WHEELED VEHICLES									TANKS AND ARTILLERY										
		Target radius (meters)								Prob min R_D (meters)	Target radius (meters)						Prob min R_D (meters)				
		100	150	200	250	300	350	400	450		100	150									
2,000	1,500	.9/.9	.8/.9	.6/.7	.4/.5	.2/.3	.2/.2	.1/.2	.1/.1	175	.1/.2	.0/.1							25	30	102
3,000	1,600	.9/.9	.8/.9	.5/.7	.3/.4	.2/.3	.1/.2	.1/.2	.1/.1	150	.0/.1								25	45	111
4,000	1,600	.8/.9	.6/.8	.4/.6	.2/.4	.1/.3	.1/.2	.1/.1		125	.0/.1								0	55	119
5,000	1,600	.4/.8	.2/.6	.1/.4	.0/.3	.0/.2	.0/.2	.0/.1		75	.0/.1								0	70	128
6,000	1,600	.1/.7	.0/.5	.0/.3	.0/.2	.0/.2	.0/.1			50									0	85	137
7,000	1,600	.0/.5	.0/.4	.0/.3	.0/.2	.0/.1				0									0	95	146
8,000	1,600	.0/.4	.0/.3	.0/.2	.0/.1					0									0	110	154
9,000	1,700	.0/.3	.0/.2	.0/.2	.0/.1					0									0	125	163
10,000	1,700	.0/.2	.0/.2	.0/.1						0									0	135	172

Figure 1.3a(2).

MATERIEL Targets
Short-Range Cannon

BRAVO/1 KT

LOW Airburst
Precludes fallout

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.																	Offset distance d_o (meters)	Height of burst (meters)		
		WHEELED VEHICLES									TANKS AND ARTILLERY											
		Target radius (meters)									Prob min R_D (meters)	Target radius (meters)									Prob min R_D (meters)	
		150	200	250	300	350	400	450	500	100		150	200	250	300	350	400					
2,000	1,800	.9/.9	.9/.9	.8/.9	.6/.7	.5/.6	.3/.4	.3/.3	.2/.3	250	.9/.9	.8/.8	.5/.6	.3/.4	.2/.3	.1/.2	.1/.1		150	30	53	
3,000	1,800	.9/.9	.9/.9	.8/.9	.6/.7	.5/.6	.3/.4	.3/.3	.2/.3	250	.9/.9	.7/.8	.5/.6	.3/.4	.2/.3	.1/.2	.1/.1		150	45	57	
4,000	1,800	.9/.9	.9/.9	.8/.9	.6/.7	.5/.5	.3/.4	.3/.3	.2/.3	250	.8/.9	.6/.8	.4/.5	.2/.3	.1/.2	.1/.2	.1/.1		125	55	65	
5,000	1,800	.9/.9	.8/.9	.7/.8	.6/.7	.4/.5	.3/.4	.2/.3	.2/.3	250	.7/.9	.4/.7	.2/.5	.1/.3	.1/.2	.0/.1			100	70	74	
6,000	1,800	.9/.9	.8/.9	.7/.8	.5/.7	.4/.5	.3/.4	.2/.3	.2/.3	225	.5/.8	.2/.6	.1/.4	.1/.3	.0/.2	.0/.1			75	85	83	
7,000	1,800	.9/.9	.8/.9	.6/.8	.5/.6	.4/.5	.3/.4	.2/.3	.2/.2	225	.3/.7	.1/.5	.1/.3	.0/.2	.0/.1				75	95	92	
8,000	1,900	.8/.9	.7/.9	.6/.8	.4/.6	.3/.5	.2/.4	.2/.3	.1/.2	225	.1/.6	.0/.3	.0/.2	.0/.1					50	110	100	
9,000	1,900	.8/.9	.7/.8	.5/.7	.4/.6	.3/.4	.2/.3	.2/.3	.1/.2	200	.0/.5	.0/.3	.0/.2	.0/.1					25	125	109	
10,000	1,900	.7/.9	.6/.8	.5/.7	.4/.5	.3/.4	.2/.3	.1/.3	.1/.2	175	.0/.4	.0/.2	.0/.1						0	135	118	

SRC 1

Figure 1.3b(1).

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

Range (meters)	Minimum safe distance (negligible risk, UnW Ex) (meters)	FRACTION OF TARGET COVERED In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage.																Offset distance d_o (meters)	Height of burst (meters)		
		WHEELED VEHICLES									TANKS AND ARTILLERY										
		Target radius (meters)								Prob min R_D (meters)	Target radius (meters)						Prob min R_D (meters)				
		100	150	200	250	300	350	400	450		100	150	200								
2,000	1,800	.9/.9	.9/.9	.8/.9	.7/.8	.5/.6	.3/.4	.2/.3	.2/.3	225	.2/.4	.1/.2	.0/.1						50	30	123
3,000	1,800	.9/.9	.9/.9	.8/.9	.6/.7	.4/.5	.3/.4	.2/.3	.2/.2	200	.1/.3	.0/.1							25	45	132
4,000	1,800	.9/.9	.9/.9	.7/.9	.5/.7	.4/.5	.3/.4	.2/.3	.1/.2	200	.0/.2	.0/.1							25	55	140
5,000	1,800	.9/.9	.8/.9	.6/.8	.4/.6	.3/.4	.2/.3	.1/.3	.1/.2	150	.0/.1								0	70	149
6,000	1,800	.7/.9	.4/.8	.2/.7	.1/.5	.1/.4	.0/.3	.0/.2	.0/.2	100	.0/.1								0	85	158
7,000	1,800	.4/.8	.2/.7	.1/.5	.0/.4	.0/.3	.0/.2	.0/.2	.0/.1	75	.0/.1								0	95	167
8,000	1,900	.1/.7	.0/.6	.0/.4	.0/.3	.0/.2	.0/.2	.0/.1		25	.0/.1								0	110	175
9,000	1,900	.0/.6	.0/.5	.0/.4	.0/.3	.0/.2	.0/.2	.0/.1		0									0	125	184
10,000	1,900	.0/.4	.0/.4	.0/.3	.0/.2	.0/.2	.0/.1			0									0	135	193

Figure 1.3b(2).

¹Short-Range Cannon.

Troop Safety Distances—Meters

Short-Range Cannon

ALFA/.5 KT

LOW Airburst

Range	Minimum distance required for troop vulnerability and degree of risk shown								
	Unwarned exposed personnel			Warned exposed personnel			Warned protected personnel		
	Neg risk	Mod risk	Emerg risk	Neg risk	Mod risk	Emerg risk	Neg risk	Mod risk	Emerg risk
2,000	1,500	1,300	1,000	1,500	1,300	1,000	1,300	1,100	800
3,000	1,600	1,300	1,100	1,600	1,300	1,100	1,300	1,100	900
4,000	1,600	1,300	1,100	1,600	1,300	1,100	1,300	1,100	900
5,000	1,600	1,300	1,100	1,600	1,300	1,100	1,300	1,100	900
6,000	1,600	1,400	1,100	1,600	1,400	1,100	1,400	1,100	900
7,000	1,600	1,400	1,100	1,600	1,400	1,100	1,400	1,200	900
8,000	1,700	1,400	1,100	1,700	1,400	1,100	1,400	1,200	900
9,000	1,700	1,400	1,200	1,700	1,400	1,200	1,400	1,200	1,000
10,000	1,700	1,400	1,200	1,700	1,400	1,200	1,400	1,200	1,000

Figure 1.4a(1).

HIGH Airburst

Range	Minimum distance required for troop vulnerability and degree of risk shown								
	Unwarned exposed personnel			Warned exposed personnel			Warned protected personnel		
	Neg risk	Mod risk	Emerg risk	Neg risk	Mod risk	Emerg risk	Neg risk	Mod risk	Emerg risk
2,000	1,500	1,300	1,000	1,500	1,300	1,000	1,300	1,100	800
3,000	1,600	1,300	1,100	1,600	1,300	1,000	1,300	1,100	800
4,000	1,600	1,300	1,100	1,600	1,300	1,000	1,300	1,100	900
5,000	1,600	1,300	1,100	1,600	1,300	1,000	1,300	1,100	900
6,000	1,600	1,400	1,100	1,600	1,400	1,000	1,300	1,100	900
7,000	1,600	1,400	1,100	1,600	1,400	1,000	1,400	1,100	900
8,000	1,600	1,400	1,100	1,600	1,400	1,100	1,400	1,200	900
9,000	1,700	1,400	1,200	1,700	1,400	1,200	1,400	1,200	900
10,000	1,700	1,400	1,200	1,700	1,400	1,200	1,400	1,200	1,000

Figure 1.4a(2).

BRAVO/1 KT

LOW Airburst

Range	Minimum distance required for troop vulnerability and degree of risk shown								
	Unwarned exposed personnel			Warned exposed personnel			Warned protected personnel		
	Neg risk	Mod risk	Emerg risk	Neg risk	Mod risk	Emerg risk	Neg risk	Mod risk	Emerg risk
2,000	1,800	1,500	1,300	1,800	1,500	1,300	1,400	1,300	1,000
3,000	1,800	1,500	1,300	1,800	1,500	1,300	1,400	1,300	1,100
4,000	1,800	1,500	1,300	1,800	1,500	1,300	1,500	1,300	1,100
5,000	1,800	1,500	1,300	1,800	1,500	1,300	1,500	1,300	1,100
6,000	1,800	1,500	1,300	1,800	1,500	1,300	1,500	1,300	1,100
7,000	1,800	1,600	1,400	1,800	1,600	1,400	1,500	1,400	1,100
8,000	1,900	1,600	1,400	1,900	1,600	1,400	1,500	1,400	1,100
9,000	1,900	1,600	1,400	1,900	1,600	1,400	1,500	1,400	1,200
10,000	1,900	1,600	1,400	1,900	1,600	1,400	1,600	1,400	1,200

Figure 1.4b(1).

HIGH Airburst

Range	Minimum distance required for troop vulnerability and degree of risk shown								
	Unwarned exposed personnel			Warned exposed personnel			Warned protected personnel		
	Neg risk	Mod risk	Emerg risk	Neg risk	Mod risk	Emerg risk	Neg risk	Mod risk	Emerg risk
2,000	1,800	1,500	1,300	1,800	1,500	1,300	1,400	1,300	1,000
3,000	1,800	1,500	1,300	1,800	1,500	1,300	1,400	1,300	1,000
4,000	1,800	1,500	1,300	1,800	1,500	1,300	1,500	1,300	1,100
5,000	1,800	1,500	1,300	1,800	1,500	1,300	1,500	1,300	1,100
6,000	1,800	1,500	1,300	1,800	1,500	1,300	1,500	1,300	1,100
7,000	1,800	1,600	1,400	1,800	1,600	1,400	1,500	1,400	1,100
8,000	1,900	1,600	1,400	1,900	1,600	1,400	1,500	1,400	1,100
9,000	1,900	1,600	1,400	1,900	1,600	1,400	1,500	1,400	1,100
10,000	1,900	1,600	1,400	1,900	1,600	1,400	1,600	1,400	1,200

Figure 1.4b(2).

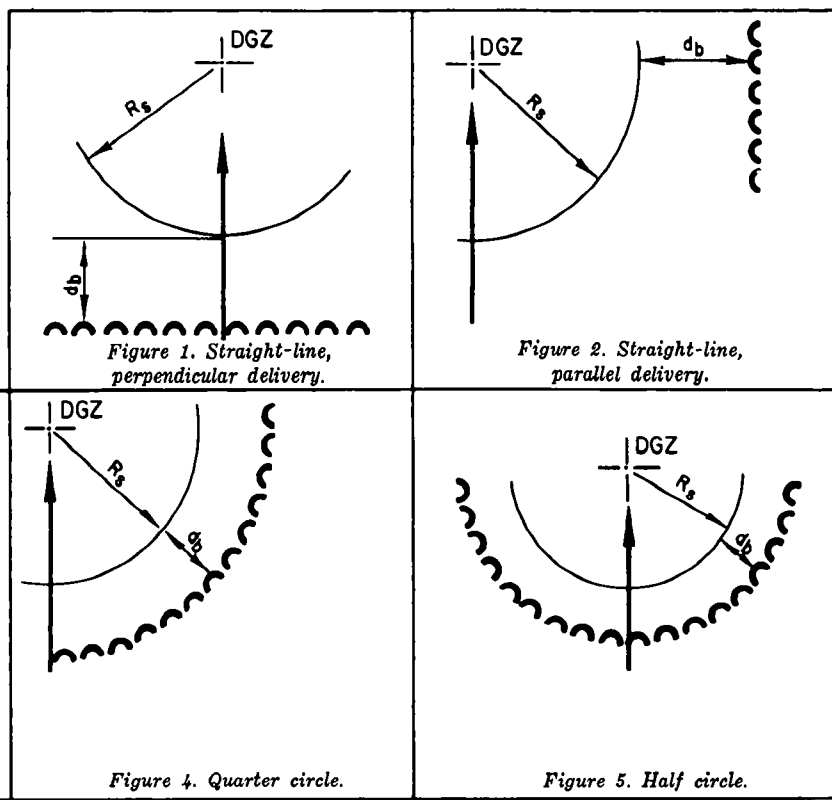
NOTE: The troop safety distances include the safety radius for the yield plus the buffer distance for delivery perpendicular to a straight line friendly troop orientation. See figure 1.5 for special friendly troop orientations.

SUPPLEMENTARY TROOP SAFETY Tables **Short-Range Cannon—All Yields**

The troop safety distances in figures 1.4a(1) through 1.4b(2) are based on the friendly troop orientation shown in figure 1, below. The elliptical delivery pattern of the short-range cannon may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

Special Troop Safety Orientations

LEGEND
 DGZ - Desired ground zero.
 R_s - Safety radius.
 d_b - Buffer distance.
 ~~~~~ - Friendly troops.  
 ➔ - Direction of fire.



When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figures 1.4a(1) through 1.4b(2) must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures are shown in meters.

| All Height of Burst Options—All Yields |                                               |                                          |                              |                           |                   |                                               |                                          |                              |                           |
|----------------------------------------|-----------------------------------------------|------------------------------------------|------------------------------|---------------------------|-------------------|-----------------------------------------------|------------------------------------------|------------------------------|---------------------------|
| Range<br>(meters)                      | Straight-line<br>parallel delivery<br>(Fig 2) | Straight-line<br>45° delivery<br>(Fig 3) | Quarter<br>circle<br>(Fig 4) | Half<br>circle<br>(Fig 5) | Range<br>(meters) | Straight-line<br>parallel delivery<br>(Fig 2) | Straight-line<br>45° delivery<br>(Fig 3) | Quarter<br>circle<br>(Fig 4) | Half<br>circle<br>(Fig 5) |
| 2,000                                  | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |
| 3,000                                  | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |
| 4,000                                  | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |
| 5,000                                  | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |
| 6,000                                  | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |
| 7,000                                  | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |
| 8,000                                  | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |
| 9,000                                  | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |
| 10,000                                 | 0                                             | 0                                        | + 100                        | + 100                     |                   |                                               |                                          |                              |                           |

Figure 1.5.

<sup>1</sup>Short-Range Cannon.

CASUALTY and DAMAGE Tables  
Short-Range Cannon

All figures in meters

| 1   | 2                 | 3       | 4                   | 5       | 6                | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16   | 17              | 18    | 19   | 20                | 21  | 22   |
|-----|-------------------|---------|---------------------|---------|------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|------|-----------------|-------|------|-------------------|-----|------|
| HOB | Exposed personnel |         | Protected personnel |         | Personnel in APC |         | Personnel in 1-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |      |                 |       |      |                   |     |      |
|     |                   |         |                     |         |                  |         |                                |         |                                   |         |                          |         | Unwarned, exposed |       |      | Warned, exposed |       |      | Warned, protected |     |      |
|     | Prompt            | Delayed | Prompt              | Delayed | Prompt           | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer | Neg             | Mod   | Emer | Neg               | Mod | Emer |
| 675 |                   | 0       |                     |         |                  |         |                                |         |                                   |         |                          | 0       | 1,300             | 1,000 | 675  | 1,300           | 1,000 | 675  | 1,000             | 725 | 325  |
| 650 |                   | 125     |                     |         |                  |         |                                |         |                                   |         |                          | 150     | 1,325             | 1,025 | 700  | 1,325           | 1,025 | 700  | 1,025             | 750 | 375  |
| 625 |                   | 225     |                     |         |                  |         |                                |         |                                   | 0       |                          | 225     | 1,325             | 1,050 | 725  | 1,325           | 1,050 | 725  | 1,050             | 775 | 425  |
| 600 |                   | 275     |                     |         |                  |         |                                |         |                                   | 100     |                          | 275     | 1,350             | 1,050 | 750  | 1,350           | 1,050 | 750  | 1,050             | 775 | 450  |
| 575 |                   | 325     |                     |         |                  |         |                                |         |                                   | 200     |                          | 325     | 1,350             | 1,075 | 775  | 1,350           | 1,075 | 775  | 1,075             | 800 | 500  |
| 550 |                   | 375     |                     |         |                  |         |                                |         |                                   | 250     |                          | 375     | 1,350             | 1,075 | 800  | 1,350           | 1,075 | 800  | 1,075             | 825 | 525  |
| 525 |                   | 400     |                     |         |                  |         |                                |         |                                   | 300     |                          | 400     | 1,375             | 1,100 | 800  | 1,375           | 1,100 | 800  | 1,100             | 850 | 550  |
| 500 |                   | 425     |                     | 0       |                  | 400     |                                |         |                                   | 350     |                          | 450     | 1,375             | 1,100 | 825  | 1,375           | 1,100 | 825  | 1,100             | 850 | 575  |
| 475 |                   | 450     |                     | 150     |                  | 425     |                                |         |                                   | 375     | 0                        | 475     | 1,375             | 1,125 | 825  | 1,375           | 1,125 | 825  | 1,125             | 875 | 600  |
| 450 |                   | 475     |                     | 225     | 0                | 450     |                                |         |                                   | 400     | 300                      | 500     | 1,400             | 1,125 | 850  | 1,400           | 1,125 | 850  | 1,125             | 875 | 600  |
| 425 | 0                 | 500     |                     | 275     | 150              | 475     |                                |         | 0                                 | 425     | 375                      | 500     | 1,400             | 1,125 | 850  | 1,400           | 1,125 | 850  | 1,125             | 900 | 625  |
| 400 | 150               | 525     |                     | 300     | 200              | 500     |                                | 0       | 150                               | 450     | 450                      | 525     | 1,400             | 1,150 | 875  | 1,400           | 1,150 | 875  | 1,150             | 900 | 650  |
| 375 | 200               | 550     |                     | 325     | 250              | 525     |                                | 50      | 200                               | 475     | 575                      | 575     | 1,425             | 1,150 | 875  | 1,425           | 1,150 | 875  | 1,150             | 925 | 650  |
| 350 | 250               | 550     |                     | 350     | 275              | 525     |                                | 150     | 250                               | 500     | 750                      | 750     | 1,425             | 1,150 | 900  | 1,425           | 1,150 | 900  | 1,150             | 925 | 675  |
| 325 | 275               | 575     |                     | 375     | 300              | 550     |                                | 200     | 275                               | 525     | 800                      | 800     | 1,425             | 1,175 | 900  | 1,425           | 1,175 | 900  | 1,175             | 950 | 700  |
| 300 | 300               | 600     | 0                   | 400     | 325              | 575     |                                | 225     | 300                               | 525     | 800                      | 800     | 1,425             | 1,175 | 900  | 1,425           | 1,175 | 900  | 1,175             | 950 | 700  |
| 275 | 325               | 600     | 125                 | 425     | 350              | 575     |                                | 275     | 325                               | 550     | 800                      | 800     | 1,450             | 1,175 | 925  | 1,450           | 1,175 | 925  | 1,175             | 950 | 700  |
| 250 | 350               | 600     | 175                 | 425     | 375              | 600     | 0                              | 275     | 350                               | 550     | 775                      | 775     | 1,450             | 1,175 | 925  | 1,450           | 1,175 | 925  | 1,175             | 950 | 725  |
| 225 | 350               | 625     | 200                 | 450     | 400              | 600     | 75                             | 300     | 400                               | 575     | 725                      | 725     | 1,450             | 1,200 | 925  | 1,450           | 1,200 | 925  | 1,200             | 975 | 725  |
| 200 | 375               | 625     | 225                 | 450     | 400              | 600     | 125                            | 325     | 425                               | 575     | 700                      | 700     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 725  |
| 175 | 400               | 650     | 250                 | 475     | 425              | 625     | 175                            | 350     | 425                               | 575     | 650                      | 650     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 750  |
| 150 | 400               | 650     | 250                 | 475     | 425              | 625     | 200                            | 350     | 400                               | 600     | 625                      | 650     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 750  |
| 125 | 400               | 650     | 275                 | 475     | 425              | 625     | 200                            | 350     | 400                               | 600     | 600                      | 650     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 750  |
| 100 | 425               | 650     | 275                 | 500     | 450              | 625     | 225                            | 375     | 400                               | 600     | 575                      | 650     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 750  |
| 75  | 425               | 650     | 300                 | 500     | 450              | 625     | 225                            | 375     | 425                               | 600     | 550                      | 650     | 1,475             | 1,200 | 950  | 1,475           | 1,200 | 950  | 1,200             | 975 | 750  |
| 50  | 425               | 675     | 300                 | 500     | 450              | 650     | 225                            | 375     | 425                               | 600     | 550                      | 650     | 1,475             | 1,200 | 950  | 1,475           | 1,200 | 950  | 1,200             | 975 | 750  |
| 25  | 425               | 675     | 300                 | 500     | 450              | 650     | 250                            | 375     | 425                               | 600     | 525                      | 675     | 1,475             | 1,200 | 950  | 1,475           | 1,200 | 950  | 1,200             | 975 | 750  |
| 0   | 425               | 675     | 300                 | 500     | 450              | 650     | 250                            | 375     | 425                               | 600     | 525                      | 675     | 1,475             | 1,200 | 950  | 1,475           | 1,200 | 950  | 1,200             | 975 | 750  |

HOB<sub>fs</sub> = 24 mLow HOB<sub>min</sub> = 42 mHigh HOB<sub>min</sub> = 96 mHOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 1.6a.

# **CASUALTY and DAMAGE Tables** **Short-Range Cannon**

**ALFA/.5 KT**

*All figures in meters*

SRC 1

| 23  | 24                            | 25                               | 26                           | 27                                           | 28                                      | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-----|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|-----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>ltwg and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>Over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|     |                               |                                  |                              |                                              |                                         |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at G2 (Rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|     |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 675 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,225                      |                          |            | 0-10        |            |                 |            |             | 0-550      |
| 650 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,250                      |                          |            | 0-10        |            |                 |            |             | 0-550      |
| 625 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,275                      |                          |            | 0-10        |            |                 |            |             | 0-600      |
| 600 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,275                      |                          |            | 0-15        |            |                 |            |             | 0-600      |
| 575 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,300                      |                          | 0          | 0-15        |            |                 | 0          |             | 0-650      |
| 550 |                               |                                  |                              |                                              |                                         |                                | 0               |                              |                              | 1,325                      |                          | 0-5        | 0-20        |            |                 | 0-50       |             | 0-650      |
| 525 |                               |                                  |                              |                                              |                                         |                                | 125             |                              |                              | 1,325                      |                          | 0-5        | 0-25        |            |                 | 0-100      |             | 0-650      |
| 500 |                               |                                  |                              |                                              |                                         |                                | 200             |                              |                              | 1,325                      |                          | 0-5        | 0-30        |            |                 | 0-250      |             | 0-700      |
| 475 |                               |                                  |                              |                                              |                                         |                                | 250             |                              |                              | 1,325                      |                          | 0-5        | 0-45        |            |                 | 0-300      |             | 0-750      |
| 450 |                               |                                  |                              |                                              |                                         |                                | 300             |                              |                              | 1,350                      |                          | 0-5        | 5-60        |            |                 | 0-350      |             | 50-750     |
| 425 |                               |                                  |                              |                                              |                                         |                                | 325             |                              |                              | 1,350                      |                          | 0-10       | 5-75        |            |                 | 0-350      |             | 150-750    |
| 400 |                               |                                  |                              |                                              |                                         |                                | 375             |                              |                              | 1,350                      |                          | 0-10       | 5-100       |            |                 | 0-400      |             | 200-750    |
| 375 |                               |                                  |                              |                                              |                                         |                                | 400             |                              |                              | 1,350                      | 0                        | 0-15       | 10-130      |            | 0               | 0-450      |             | 250-800    |
| 350 |                               |                                  |                              |                                              |                                         |                                | 400             |                              |                              | 1,350                      | 0-5                      | 0-15       | 10-160      |            | 0-50            | 0-450      |             | 300-800    |
| 325 |                               |                                  |                              |                                              |                                         |                                | 425             | 0                            |                              | 1,350                      | 0-5                      | 0-20       | 10-200      |            | 0-150           | 0-450      |             | 350-800    |
| 300 |                               |                                  |                              |                                              |                                         |                                | 450             | 75                           |                              | 1,325                      | 0-5                      | 0-20       | 10-240      |            | 0-200           | 0-500      |             | 350-800    |
| 275 |                               |                                  |                              |                                              |                                         |                                | 475             | 150                          |                              | 1,325                      | 0-5                      | 0-25       | 15-290      |            | 0-250           | 0-500      |             | 400-850    |
| 250 |                               |                                  |                              |                                              |                                         |                                | 475             | 175                          |                              | 1,300                      | 0-5                      | 0-30       | 15-330      |            | 0-250           | 0-500      |             | 400-850    |
| 225 |                               |                                  |                              | 0                                            |                                         |                                | 500             | 225                          |                              | 1,300                      | 0-5                      | 0-35       | 20-390      |            | 0-300           | 0-550      |             | 400-850    |
| 200 | 0                             |                                  |                              | 50                                           |                                         |                                | 500             | 225                          |                              | 1,275                      | 0-5                      | 0-45       | 25-540      |            | 0-300           | 0-550      |             | 450-850    |
| 175 | 25                            |                                  |                              | 100                                          |                                         |                                | 500             | 250                          |                              | 1,250                      | 0-10                     | 0-55       | 30-660      |            | 0-350           | 0-550      |             | 450-850    |
| 150 | 75                            | 0                                | 0                            | 125                                          |                                         | 0                              | 525             | 275                          | 0                            | 1,250                      | 0-10                     | 5-70       | 35-840      |            | 0-350           | 50-550     |             | 450-850    |
| 125 | 150                           | 25                               | 50                           | 150                                          |                                         | 175                            | 525             | 275                          | 50                           | 1,225                      | 0-10                     | 5-100      | 45-1,150    |            | 0-350           | 100-550    |             | 450-850    |
| 100 | 175                           | 50                               | 75                           | 175                                          |                                         | 200                            | 525             | 300                          | 100                          | 1,200                      | 0-15                     | 5-120      | 55-1,350    |            | 0-350           | 150-550    |             | 450-850    |
| 75  | 200                           | 75                               | 100                          | 175                                          | 0                                       | 200                            | 525             | 300                          | 100                          | 1,150                      | 0-20                     | 10-145     | 70-1,750    |            | 0-350           | 150-550    |             | 450-850    |
| 50  | 200                           | 100                              | 100                          | 200                                          | 175                                     | 200                            | 550             | 300                          | 125                          | 1,125                      | 0-20                     | 10-175     | 85-2,100    |            | 0-350           | 150-550    |             | 450-850    |
| 25  | 200                           | 125                              | 100                          | 200                                          | 150                                     | 175                            | 450             | 250                          | 125                          | 1,100                      | 0-25                     | 10-250     | 120-2,900   | 0          | 0-350           | 150-550    |             | 450-850    |
| 0   | 125                           | 100                              | 75                           | 150                                          | 100                                     | 125                            | 325             | 150                          | 75                           | 1,050                      | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |

Figure 1.6a continued.

CASUALTY and DAMAGE Tables  
Short-Range Cannon

All figures in meters

| 1   | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                              | 9       | 10                                 | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22   |
|-----|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|------------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|------|
| HOB | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelter |         | Personnel in multi-story apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |      |
|     |                   |         |                     |         |                    |         |                                |         |                                    |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |      |
|     | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                         | Delayed | Prompt                             | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer |
| 825 |                   |         |                     |         |                    |         |                                |         |                                    |         |                          |         | 1,450             | 1,125 | 850   | 1,450           | 1,125 | 850   | 1,075             | 850   | 475  |
| 800 |                   | 0       |                     |         |                    |         |                                |         |                                    |         |                          |         | 1,475             | 1,150 | 875   | 1,475           | 1,150 | 875   | 1,100             | 875   | 525  |
| 775 |                   | 125     |                     |         |                    |         |                                |         |                                    |         |                          | 0       | 1,475             | 1,150 | 900   | 1,475           | 1,150 | 900   | 1,100             | 900   | 550  |
| 750 |                   | 225     |                     |         |                    |         |                                |         |                                    |         |                          | 150     | 1,500             | 1,175 | 925   | 1,500           | 1,175 | 925   | 1,125             | 925   | 600  |
| 725 |                   | 300     |                     |         |                    |         |                                |         |                                    |         |                          | 250     | 1,500             | 1,200 | 950   | 1,500           | 1,200 | 950   | 1,150             | 950   | 625  |
| 700 |                   | 350     |                     |         |                    |         |                                |         |                                    |         | 100                      |         | 1,525             | 1,200 | 950   | 1,525           | 1,200 | 950   | 1,150             | 950   | 650  |
| 675 |                   | 400     |                     |         |                    |         |                                |         |                                    |         | 200                      |         | 1,525             | 1,225 | 975   | 1,525           | 1,225 | 975   | 1,175             | 975   | 675  |
| 650 |                   | 450     |                     |         |                    |         |                                |         |                                    |         | 350                      |         | 1,550             | 1,225 | 1,000 | 1,550           | 1,225 | 1,000 | 1,200             | 1,000 | 700  |
| 625 |                   | 475     |                     |         |                    |         |                                |         |                                    |         | 325                      |         | 1,550             | 1,250 | 1,000 | 1,550           | 1,250 | 1,000 | 1,200             | 1,000 | 725  |
| 600 |                   | 500     |                     | 0       |                    |         |                                |         |                                    |         | 375                      |         | 1,550             | 1,250 | 1,025 | 1,550           | 1,250 | 1,025 | 1,225             | 1,025 | 750  |
| 575 | 0                 | 550     |                     | 125     |                    |         |                                |         |                                    |         | 400                      | 0       | 1,575             | 1,275 | 1,050 | 1,575           | 1,275 | 1,050 | 1,225             | 1,050 | 775  |
| 550 | 125               | 550     |                     | 225     |                    |         |                                |         |                                    |         | 450                      | 325     | 1,575             | 1,275 | 1,050 | 1,575           | 1,275 | 1,050 | 1,250             | 1,050 | 800  |
| 525 | 200               | 575     |                     | 275     | 75                 |         |                                |         |                                    |         | 475                      | 400     | 1,575             | 1,300 | 1,075 | 1,575           | 1,300 | 1,075 | 1,250             | 1,075 | 800  |
| 500 | 275               | 600     |                     | 300     | 175                |         |                                |         |                                    |         | 500                      | 475     | 1,600             | 1,300 | 1,075 | 1,600           | 1,300 | 1,075 | 1,250             | 1,075 | 825  |
| 475 | 300               | 625     |                     | 350     | 225                |         |                                |         |                                    |         | 525                      | 550     | 1,600             | 1,300 | 1,100 | 1,600           | 1,300 | 1,100 | 1,275             | 1,100 | 825  |
| 450 | 350               | 650     |                     | 375     | 275                |         |                                |         |                                    |         | 550                      | 600     | 1,600             | 1,325 | 1,100 | 1,600           | 1,325 | 1,100 | 1,275             | 1,100 | 850  |
| 425 | 375               | 650     | 0                   | 400     | 325                |         |                                |         |                                    |         | 550                      | 700     | 1,625             | 1,325 | 1,100 | 1,625           | 1,325 | 1,100 | 1,300             | 1,100 | 850  |
| 400 | 400               | 675     | 100                 | 425     | 350                |         |                                |         |                                    |         | 575                      | 950     | 1,625             | 1,325 | 1,125 | 1,625           | 1,325 | 1,125 | 1,300             | 1,125 | 875  |
| 375 | 425               | 700     | 175                 | 450     | 375                |         |                                |         |                                    |         | 600                      | 975     | 1,625             | 1,350 | 1,125 | 1,625           | 1,350 | 1,125 | 1,300             | 1,125 | 875  |
| 350 | 450               | 700     | 225                 | 475     | 400                |         |                                |         |                                    |         | 600                      | 1,000   | 1,625             | 1,350 | 1,125 | 1,625           | 1,350 | 1,125 | 1,300             | 1,125 | 900  |
| 325 | 475               | 725     | 250                 | 500     | 425                |         |                                |         |                                    |         | 625                      | 1,000   | 1,650             | 1,350 | 1,150 | 1,650           | 1,350 | 1,150 | 1,325             | 1,150 | 900  |
| 300 | 475               | 725     | 275                 | 500     | 425                |         |                                |         |                                    |         | 625                      | 975     | 1,650             | 1,350 | 1,150 | 1,650           | 1,350 | 1,150 | 1,325             | 1,150 | 900  |
| 275 | 500               | 725     | 300                 | 525     | 450                |         |                                |         |                                    |         | 650                      | 950     | 1,650             | 1,375 | 1,150 | 1,650           | 1,375 | 1,150 | 1,325             | 1,150 | 925  |
| 250 | 500               | 750     | 325                 | 525     | 475                |         |                                |         |                                    |         | 650                      | 925     | 1,650             | 1,375 | 1,150 | 1,650           | 1,375 | 1,150 | 1,325             | 1,150 | 925  |
| 225 | 525               | 750     | 350                 | 550     | 475                |         |                                |         |                                    |         | 675                      | 875     | 1,650             | 1,375 | 1,175 | 1,650           | 1,375 | 1,175 | 1,350             | 1,175 | 925  |
| 200 | 525               | 750     | 350                 | 550     | 500                |         |                                |         |                                    |         | 675                      | 850     | 1,650             | 1,375 | 1,175 | 1,650           | 1,375 | 1,175 | 1,350             | 1,175 | 950  |
| 175 | 550               | 775     | 375                 | 575     | 500                |         |                                |         |                                    |         | 725                      | 800     | 1,650             | 1,375 | 1,175 | 1,650           | 1,375 | 1,175 | 1,350             | 1,175 | 950  |
| 150 | 550               | 775     | 375                 | 575     | 500                |         |                                |         |                                    |         | 725                      | 775     | 1,650             | 1,375 | 1,175 | 1,650           | 1,375 | 1,175 | 1,350             | 1,175 | 950  |
| 125 | 550               | 775     | 400                 | 575     | 525                |         |                                |         |                                    |         | 725                      | 750     | 1,675             | 1,375 | 1,175 | 1,675           | 1,375 | 1,175 | 1,350             | 1,175 | 950  |
| 100 | 550               | 775     | 400                 | 575     | 525                |         |                                |         |                                    |         | 725                      | 750     | 1,675             | 1,400 | 1,175 | 1,675           | 1,400 | 1,175 | 1,350             | 1,175 | 950  |
| 75  | 550               | 775     | 400                 | 575     | 525                |         |                                |         |                                    |         | 725                      | 750     | 1,675             | 1,400 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,175 | 950  |
| 50  | 550               | 775     | 400                 | 600     | 525                |         |                                |         |                                    |         | 725                      | 750     | 1,675             | 1,400 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,200 | 950  |
| 25  | 550               | 775     | 400                 | 600     | 525                |         |                                |         |                                    |         | 725                      | 750     | 1,675             | 1,400 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,200 | 950  |
| 0   | 550               | 775     | 400                 | 600     | 525                |         |                                |         |                                    |         | 725                      | 750     | 1,675             | 1,400 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,200 | 950  |

HOB<sub>18</sub> = 30 mLow HOB<sub>min</sub> = 53 mHigh HOB<sub>min</sub> = 120 mHOB<sub>99</sub> = HOB<sub>18</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>18</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>18</sub> + 1.9 PE<sub>h</sub> m

Figure 1.6b.

# CASUALTY and DAMAGE Tables Short-Range Cannon

**BRAVO/1 KT**

All figures in meters

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| 23  | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                               | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |  |
|-----|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|----------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|--|
| HOB | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>bridge | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |  |
|     |                               |                                  |                              |                                              |                                        |                                  | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |  |
|     |                               |                                  |                              |                                              |                                        |                                  |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III, | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |  |
| 825 |                               |                                  |                              |                                              |                                        |                                  |                 |                              |                              | 1,550                      |                          |            | 0-5          |            |                 |            | 0-500       |            |  |
| 800 |                               |                                  |                              |                                              |                                        |                                  |                 |                              |                              | 1,575                      |                          |            | 0-5          |            |                 |            | 0-550       |            |  |
| 775 |                               |                                  |                              |                                              |                                        |                                  |                 |                              |                              | 1,600                      |                          |            | 0-10         |            |                 |            | 0-550       |            |  |
| 750 |                               |                                  |                              |                                              |                                        |                                  | 0               |                              |                              | 1,625                      |                          |            | 0-10         |            |                 |            | 0-600       |            |  |
| 725 |                               |                                  |                              |                                              |                                        |                                  | 200             |                              |                              | 1,650                      |                          |            | 0-10         |            |                 |            | 0-650       |            |  |
| 700 |                               |                                  |                              |                                              |                                        |                                  | 275             |                              |                              | 1,650                      |                          |            | 0-10         |            |                 |            | 0-650       |            |  |
| 675 |                               |                                  |                              |                                              |                                        |                                  | 325             |                              |                              | 1,675                      |                          |            | 0-15         |            |                 |            | 0-700       |            |  |
| 650 |                               |                                  |                              |                                              |                                        |                                  | 375             |                              |                              | 1,675                      |                          |            | 0-20         |            |                 |            | 0-700       |            |  |
| 625 |                               |                                  |                              |                                              |                                        |                                  | 425             |                              |                              | 1,675                      |                          | 0          | 0-20         |            | 0               |            | 0-750       |            |  |
| 600 |                               |                                  |                              |                                              |                                        |                                  | 450             |                              |                              | 1,675                      |                          | 0-5        | 0-25         |            |                 | 0-50       | 0-750       |            |  |
| 575 |                               |                                  |                              |                                              |                                        |                                  | 475             |                              |                              | 1,700                      |                          | 0-5        | 0-30         |            |                 | 0-200      | 0-800       |            |  |
| 550 |                               |                                  |                              |                                              |                                        |                                  | 500             |                              |                              | 1,700                      |                          | 0-5        | 0-40         |            |                 | 0-250      | 0-800       |            |  |
| 525 |                               |                                  |                              |                                              |                                        |                                  | 525             |                              |                              | 1,700                      |                          | 0-5        | 0-50         |            |                 | 0-300      | 0-800       |            |  |
| 500 |                               |                                  |                              |                                              |                                        |                                  | 550             |                              |                              | 1,700                      |                          | 0-5        | 0-60         |            |                 | 0-350      | 0-800       |            |  |
| 475 |                               |                                  |                              |                                              |                                        |                                  | 575             |                              |                              | 1,700                      |                          | 0-10       | 0-90         |            |                 | 0-400      | 0-850       |            |  |
| 450 |                               |                                  |                              |                                              |                                        |                                  | 600             |                              |                              | 1,700                      |                          | 0-10       | 5-120        |            |                 | 0-400      | 50-850      |            |  |
| 425 |                               |                                  |                              |                                              |                                        |                                  | 625             |                              |                              | 1,700                      | 0                        | 0-15       | 10-150       |            | 0               | 0-450      | 150-900     |            |  |
| 400 |                               |                                  |                              |                                              |                                        |                                  | 625             |                              |                              | 1,700                      | 0-5                      | 0-20       | 10-200       |            | 0-50            | 0-450      | 200-900     |            |  |
| 375 |                               |                                  |                              |                                              |                                        |                                  | 650             |                              |                              | 1,675                      | 0-5                      | 0-25       | 15-260       |            | 0-150           | 0-500      | 250-900     |            |  |
| 350 |                               |                                  |                              |                                              |                                        |                                  | 675             | 0                            |                              | 1,675                      | 0-5                      | 0-30       | 15-320       |            | 0-200           | 0-500      | 300-900     |            |  |
| 325 |                               |                                  |                              |                                              |                                        |                                  | 675             | 125                          |                              | 1,650                      | 0-5                      | 0-35       | 20-400       |            | 0-250           | 0-500      | 350-900     |            |  |
| 300 |                               |                                  |                              | 0                                            |                                        |                                  | 675             | 175                          |                              | 1,650                      | 0-5                      | 5-40       | 20-480       |            | 0-300           | 50-550     | 350-950     |            |  |
| 275 |                               |                                  |                              | 25                                           |                                        |                                  | 700             | 200                          |                              | 1,625                      | 0-10                     | 5-50       | 25-580       |            | 0-300           | 150-550    | 400-950     |            |  |
| 250 |                               |                                  |                              | 75                                           |                                        |                                  | 700             | 250                          |                              | 1,600                      | 0-10                     | 5-55       | 30-660       |            | 0-350           | 200-550    | 400-950     |            |  |
| 225 | 0                             |                                  |                              | 125                                          |                                        |                                  | 725             | 250                          |                              | 1,600                      | 0-10                     | 5-65       | 35-780       |            | 0-350           | 200-600    | 400-950     |            |  |
| 200 | 50                            |                                  | 0                            | 150                                          |                                        | 0                                | 725             | 275                          | 0                            | 1,575                      | 0-10                     | 5-90       | 50-1,080     |            | 0-350           | 250-600    | 450-950     |            |  |
| 175 | 150                           | 0                                | 25                           | 175                                          |                                        | 250                              | 725             | 300                          | 50                           | 1,550                      | 0-15                     | 5-110      | 60-1,320     |            | 0-400           | 250-600    | 450-950     |            |  |
| 150 | 200                           | 25                               | 75                           | 200                                          |                                        | 250                              | 725             | 300                          | 100                          | 1,525                      | 0-15                     | 10-140     | 70-1,680     |            | 0-400           | 300-600    | 450-950     |            |  |
| 125 | 225                           | 50                               | 100                          | 225                                          |                                        | 250                              | 750             | 325                          | 125                          | 1,500                      | 0-20                     | 10-185     | 90-2,220     |            | 0-400           | 300-600    | 450-950     |            |  |
| 100 | 250                           | 100                              | 125                          | 225                                          | 0                                      | 275                              | 750             | 325                          | 150                          | 1,475                      | 0-25                     | 10-225     | 110-2,700    |            | 0-400           | 300-600    | 450-950     |            |  |
| 75  | 250                           | 150                              | 125                          | 250                                          | 225                                    | 275                              | 750             | 325                          | 175                          | 1,450                      | 0-35                     | 15-290     | 140-3,500    |            | 0-400           | 300-600    | 450-950     |            |  |
| 50  | 250                           | 150                              | 150                          | 250                                          | 250                                    | 275                              | 725             | 325                          | 175                          | 1,400                      | 5-40                     | 15-350     | 170-4,200    | 0          | 50-400          | 300-600    | 450-950     | 0          |  |
| 25  | 250                           | 150                              | 150                          | 250                                          | 225                                    | 250                              | 575             | 350                          | 150                          | 1,375                      | FALLOUT GOVERNS          |            |              |            |                 |            |             |            |  |
| 0   | 175                           | 125                              | 100                          | 200                                          | 150                                    | 200                              | 450             | 250                          | 125                          | 1,325                      |                          |            |              |            |                 |            |             |            |  |

Figure 1.6b continued.

# **CONTINGENT EFFECTS Tables** **Short-Range Cannon**

## **INDUCED RADIATION IN SOILS (See note 1.)** **Fallout activity is not significant.**

| Yield<br>KT | HOB  | Estimated radii in meters of 2 rad/hr contour of induced radiation, one hour after burst. (See note 2.) |                                    |                                        |                                                 | Estimated induced radiation intensity, one hour after burst, at GZ in rad/hr. (See note 2.) |              |               |              |
|-------------|------|---------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------|--------------|---------------|--------------|
|             |      | Soil type I<br>(Liberia,<br>Africa)                                                                     | Soil type II<br>(Nevada<br>desert) | Soil type III<br>(lava clay<br>Hawaii) | Soil type IV<br>(beach sand<br>Pensacola, Fla.) | Soil type I                                                                                 | Soil type II | Soil type III | Soil type IV |
| ALFA/.5     | Low  | 0-350                                                                                                   | 150-550                            | 430-850                                | 0                                               | 0-25                                                                                        | 10-250       | 120-2,900     | 0            |
|             | High | 0-350                                                                                                   | 150-550                            | 450-850                                | 0                                               | 0-15                                                                                        | 10-145       | 70-1,750      | 0            |
| BRAVO/1     | Low  | 50-400                                                                                                  | 300-600                            | 450-950                                | 0                                               | 5-40                                                                                        | 15-350       | 170-4,200     | 0            |
|             | High | 0-400                                                                                                   | 300-600                            | 450-950                                | 0                                               | 0-25                                                                                        | 10-225       | 110-2,700     | 0            |

- NOTES: 1. For description of chemical composition and effects of variations in chemical composition in soil types, see FM 101-31-1, app III, annex F.  
2. For range dependent delivery systems, intensities and 2 rad/hr contours are given for minimum ranges.

Figure 1.7a.

## **TREE BLOWDOWN (See note.)** **All distances in meters**

| Yield<br>KT | OBSTACLES TO MOVEMENT             |         |          |         |                          |                   |                    | CASUALTIES TO EXPOSED PERSONNEL |                   |                    |
|-------------|-----------------------------------|---------|----------|---------|--------------------------|-------------------|--------------------|---------------------------------|-------------------|--------------------|
|             | Foot and wheeled vehicle movement |         |          |         | Tracked vehicle movement |                   |                    |                                 |                   |                    |
|             | Type I                            | Type II | Type III | Type IV | Type I                   | Types II, IV(a,d) | Types III, IV(a,f) | Type I                          | Types II, IV(a,d) | Types III, IV(a,f) |
| ALFA/.5     | 250                               | 300     | 300      | 450     | 250                      | 300               | 300                | 150                             | 200               | 200                |
| BRAVO/1     | 300                               | 400     | 400      | 700     | 300                      | 400               | 400                | 200                             | 300               | 300                |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 1.7b.

## **LIGHT AIRCRAFT IN FLIGHT (See note 1.)**

| Yield<br>KT | AIRCRAFT SAFETY RADII—meters<br>(See note 2) |                    |                        |
|-------------|----------------------------------------------|--------------------|------------------------|
|             | Light fixed-wing                             | Recon and obsn hel | Transport and util hel |
| ALFA/.5     | 4,000                                        | 4,000              | 4,000                  |
| BRAVO/1     | 5,000                                        | 5,000              | 5,000                  |

- NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.  
2. A buffer distance has been added to these radii of safety.

Figure 1.7c.

**CONTINGENT EFFECTS Tables (continued)**  
**Short-Range Cannon**

**FIRE AREAS (See note.)**

|         |     | Expected radii for ignition of wildland fuels during fire season meters |          |           |          |                                             |          |           |          |
|---------|-----|-------------------------------------------------------------------------|----------|-----------|----------|---------------------------------------------|----------|-----------|----------|
|         |     | Dry climate (25 percent relative humidity)                              |          |           |          | Damp climate (75 percent relative humidity) |          |           |          |
|         |     | Class I                                                                 | Class II | Class III | Class IV | Class I                                     | Class II | Class III | Class IV |
| ALFA/.5 | Air | 800                                                                     | 700      | 700       | 600      | 700                                         | 700      | 600       | 400      |
| BRAVO/1 | Air | 1,100                                                                   | 1,000    | 900       | 700      | 1,000                                       | 1,000    | 800       | 600      |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 1.7d.

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**TACTICAL SYSTEM ACCURACY DATA**  
**Short-Range Cannon**  
All distances in meters

| Range  | Equivalent CEP <sup>1</sup> | Probable errors |                 |                 | Offset distance (d <sub>o</sub> ) |
|--------|-----------------------------|-----------------|-----------------|-----------------|-----------------------------------|
|        |                             | PE <sub>R</sub> | PE <sub>d</sub> | PE <sub>h</sub> |                                   |
| 2,000  | 14                          | 10              | 5               | 5               | 30                                |
| 3,000  | 21                          | 15              | 8               | 8               | 45                                |
| 4,000  | 28                          | 20              | 10              | 10              | 55                                |
| 5,000  | 35                          | 25              | 13              | 13              | 70                                |
| 6,000  | 42                          | 30              | 15              | 15              | 85                                |
| 7,000  | 49                          | 35              | 18              | 18              | 95                                |
| 8,000  | 56                          | 40              | 20              | 20              | 110                               |
| 9,000  | 63                          | 45              | 23              | 23              | 125                               |
| 10,000 | 69                          | 50              | 25              | 25              | 135                               |

<sup>1</sup>Equivalent CEP =  $1.2345 (PE_R^2 + PE_d^2)^{1/2}$ .

Figure 1.8.

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## CHAPTER 2

### MEDIUM-RANGE CANNON

#### 2.1 GENERAL

a. *Orientation.* This chapter contains employment data for the medium-range cannon.

b. *Weapon characteristics.*

(1) *Yield.* The medium-range cannon can fire nuclear projectiles with yields of Bravo/1 KT and Charlie/2 KT.

(2) *Fuzing.* The nuclear projectiles for the medium-range cannon have an airburst fuzing capability. The projectiles are fuzed by time fuzes which are set for the desired time of flight by the delivery unit. These projectiles do not have a contact surface fuzing capability. If a projectile impacts, it can be expected to break up and become a dud.

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The minimum and maximum ranges of the medium-range cannon nuclear projectiles are 2,000 meters and 20,000 meters.

(2) *Tactical system accuracy.* The horizontal and vertical dispersion errors for the medium-range cannon are dependent on range. Tactical system accuracy data are contained in figure 2.8.

(3) *Unit carrying capacity.* Not a limitation in this case.

(4) *Response time.* The times shown below can be used as a basis for general tactical planning. They are applicable to a reasonably well-trained unit operating in daylight under favorable weather conditions. Blackout operations, unfavorable weather, enemy interference, equipment breakdown, or faulty test indications will extend the times listed. *For detailed tactical planning, the response times should be the actual times obtained from the artillery unit concerned.*

| Situation       | Time (minutes) |
|-----------------|----------------|
| I <sup>1</sup>  | 20             |
| II <sup>2</sup> | 3              |

<sup>1</sup>Situation I (high readiness)—the complete round and delivery system are in a firing position and survey is completed. Preliminary firing data for a specific target are not available. (May be used to engage target of opportunity.)

<sup>2</sup>Situation II (maximum readiness)—the round is positioned, fuzed, and ready to fire. Firing data for a specific target have been computed and applied to the weapon system. The firing unit is in a "do not load" status awaiting the order to fire. (Typical of readiness to engage on-call target.)

(5) *Special considerations.* The target analyst needs no special information from the unit fire direction center for target analysis. The fire mission to the unit includes the desired height of burst in meters.

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# **EXPOSED Personnel Targets** **Medium-Range Cannon**

**LOW Airburst**  
**Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 600                                                                                                                                                                    | 700   | 800   | 900   | 1,000 | 1,100 | 1,200 | 1,300 | 800                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt                                   | Delayed |                                         |                                   |
| 2,000             | 1,800                                                                      | .8/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.8                  | .6/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 575                                      | 775     | 30                                      | 53                                |
| 3,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.8                  | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 575                                      | 775     | 45                                      | 57                                |
| 4,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.8                  | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 575                                      | 775     | 55                                      | 65                                |
| 5,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 575                                      | 775     | 70                                      | 74                                |
| 6,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 575                                      | 775     | 85                                      | 83                                |
| 7,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 550                                      | 775     | 95                                      | 92                                |
| 8,000             | 1,900                                                                      | .7/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 550                                      | 775     | 110                                     | 100                               |
| 9,000             | 1,900                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 550                                      | 775     | 125                                     | 109                               |
| 10,000            | 1,900                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 550                                      | 775     | 135                                     | 118                               |
| 11,000            | 1,900                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 550                                      | 750     | 150                                     | 127                               |
| 12,000            | 1,900                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 550                                      | 750     | 165                                     | 135                               |
| 13,000            | 1,900                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 525                                      | 750     | 180                                     | 144                               |
| 14,000            | 2,000                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 525                                      | 750     | 190                                     | 153                               |
| 15,000            | 2,000                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 525                                      | 750     | 205                                     | 162                               |
| 16,000            | 2,000                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 525                                      | 750     | 220                                     | 170                               |
| 17,000            | 2,000                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 525                                      | 750     | 230                                     | 179                               |
| 18,000            | 2,000                                                                      | .6/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | 500                                      | 725     | 245                                     | 188                               |
| 19,000            | 2,000                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .6/.8                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 500                                      | 725     | 260                                     | 197                               |
| 20,000            | 2,100                                                                      | .5/.7                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .6/.8                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 500                                      | 725     | 270                                     | 205                               |

Figure 2.1a(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |      |      |      |       |       |       |       |                        |      |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|-------|-------|-------|-------|------------------------|------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |      |      |      |       |       |       |       | DELAYED CASUALTIES     |      |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |      |      |      |       |       |       |       | Target radius (meters) |      |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 600                                                                                                                                                                    | 700  | 800  | 900  | 1,000 | 1,100 | 1,200 | 1,300 | 600                    | 800  | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt                                   | Delayed |                                         |                                   |
| 2,000             | 1,800                                                                      | .7/8                                                                                                                                                                   | .6/6 | .4/5 | .3/4 | .2/3  | .2/3  | .2/2  | .1/2  | .9/9                   | .8/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 775     | 30                                      | 123                               |
| 3,000             | 1,800                                                                      | .7/8                                                                                                                                                                   | .6/6 | .4/5 | .3/4 | .2/3  | .2/3  | .2/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 775     | 45                                      | 132                               |
| 4,000             | 1,800                                                                      | .7/8                                                                                                                                                                   | .6/6 | .4/5 | .3/4 | .2/3  | .2/3  | .2/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 775     | 55                                      | 140                               |
| 5,000             | 1,800                                                                      | .7/8                                                                                                                                                                   | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 775     | 70                                      | 149                               |
| 6,000             | 1,800                                                                      | .7/8                                                                                                                                                                   | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 775     | 85                                      | 158                               |
| 7,000             | 1,800                                                                      | .7/8                                                                                                                                                                   | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 750     | 95                                      | 167                               |
| 8,000             | 1,900                                                                      | .7/8                                                                                                                                                                   | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 525                                      | 750     | 110                                     | 175                               |
| 9,000             | 1,900                                                                      | .6/8                                                                                                                                                                   | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 525                                      | 750     | 125                                     | 184                               |
| 10,000            | 1,900                                                                      | .6/8                                                                                                                                                                   | .5/6 | .4/5 | .3/4 | .2/3  | .2/2  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 525                                      | 750     | 135                                     | 193                               |
| 11,000            | 1,900                                                                      | .6/8                                                                                                                                                                   | .5/6 | .3/5 | .3/4 | .2/3  | .2/2  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/1  | 525                                      | 750     | 150                                     | 202                               |
| 12,000            | 1,900                                                                      | .6/7                                                                                                                                                                   | .5/6 | .3/5 | .3/4 | .2/3  | .2/2  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/1  | 500                                      | 750     | 165                                     | 210                               |
| 13,000            | 1,900                                                                      | .6/7                                                                                                                                                                   | .4/6 | .3/4 | .3/4 | .2/3  | .2/2  | .1/2  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 500                                      | 750     | 180                                     | 219                               |
| 14,000            | 2,000                                                                      | .6/7                                                                                                                                                                   | .4/6 | .3/4 | .2/3 | .2/3  | .1/2  | .1/2  | .1/2  | .8/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 500                                      | 750     | 190                                     | 228                               |
| 15,000            | 2,000                                                                      | .5/7                                                                                                                                                                   | .4/5 | .3/4 | .2/3 | .2/3  | .1/2  | .1/2  | .1/2  | .8/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 475                                      | 750     | 205                                     | 237                               |
| 16,000            | 2,000                                                                      | .5/7                                                                                                                                                                   | .4/5 | .3/4 | .2/3 | .2/3  | .1/2  | .1/2  | .1/1  | .8/9                   | .6/8 | .4/6  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 475                                      | 750     | 220                                     | 245                               |
| 17,000            | 2,000                                                                      | .5/7                                                                                                                                                                   | .4/5 | .3/4 | .2/3 | .2/3  | .1/2  | .1/2  | .1/1  | .8/9                   | .6/8 | .4/5  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 475                                      | 750     | 230                                     | 254                               |
| 18,000            | 2,000                                                                      | .5/6                                                                                                                                                                   | .4/5 | .3/4 | .2/3 | .2/3  | .1/2  | .1/2  | .1/1  | .8/9                   | .6/7 | .4/5  | .3/4  | .2/3  | .0/2  | .0/2  | .0/1  | 450                                      | 725     | 245                                     | 263                               |
| 19,000            | 2,000                                                                      | .5/6                                                                                                                                                                   | .4/5 | .3/4 | .2/3 | .1/3  | .1/2  | .1/2  | .1/1  | .8/9                   | .6/7 | .4/5  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 450                                      | 725     | 260                                     | 272                               |
| 20,000            | 2,100                                                                      | .4/6                                                                                                                                                                   | .3/5 | .2/4 | .2/3 | .1/3  | .1/2  | .1/2  | .1/1  | .8/9                   | .6/7 | .4/5  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 425                                      | 725     | 270                                     | 280                               |

Figure 2.1a(2).

# **EXPOSED Personnel Targets** **Medium-Range Cannon**

**CHARLIE/2 KT**

**LOW Airburst**  
**Precludes fallout**

| Range    | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is the<br>probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |  |
|----------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|--|
|          |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |  |
|          |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |  |
|          |                                                                            | 700                                                                                                                                                                    | 800   | 900   | 1,000 | 1,100 | 1,200 | 1,300 | 1,400 | 800                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt                                   | Delayed |                                         |                                   |  |
| (meters) | (meters)                                                                   |                                                                                                                                                                        |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |                                          |         |                                         |                                   |  |
| 2,000    | 2,200                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                      | 900     | 30                                      | 67                                |  |
| 3,000    | 2,300                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                      | 875     | 45                                      | 67                                |  |
| 4,000    | 2,300                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 625                                      | 875     | 55                                      | 73                                |  |
| 5,000    | 2,300                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                      | 875     | 70                                      | 82                                |  |
| 6,000    | 2,300                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                      | 875     | 85                                      | 91                                |  |
| 7,000    | 2,300                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                      | 875     | 95                                      | 100                               |  |
| 8,000    | 2,400                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                      | 875     | 110                                     | 108                               |  |
| 9,000    | 2,400                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                      | 875     | 125                                     | 117                               |  |
| 10,000   | 2,400                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                      | 875     | 135                                     | 126                               |  |
| 11,000   | 2,400                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                      | 875     | 150                                     | 135                               |  |
| 12,000   | 2,400                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                      | 875     | 165                                     | 143                               |  |
| 13,000   | 2,400                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                      | 875     | 180                                     | 152                               |  |
| 14,000   | 2,500                                                                      | .6/.7                                                                                                                                                                  | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                      | 850     | 190                                     | 161                               |  |
| 15,000   | 2,500                                                                      | .6/.7                                                                                                                                                                  | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                      | 850     | 205                                     | 170                               |  |
| 16,000   | 2,500                                                                      | .5/.7                                                                                                                                                                  | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                      | 850     | 220                                     | 178                               |  |
| 17,000   | 2,500                                                                      | .5/.7                                                                                                                                                                  | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550                                      | 850     | 230                                     | 187                               |  |
| 18,000   | 2,500                                                                      | .5/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550                                      | 850     | 245                                     | 196                               |  |
| 19,000   | 2,500                                                                      | .5/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550                                      | 850     | 260                                     | 205                               |  |
| 20,000   | 2,600                                                                      | .5/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550                                      | 825     | 270                                     | 213                               |  |

Figure 2.1b(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range  | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |          |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |       | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|--------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|-------|-----------------------------------------|-----------------------------------|
|        |                                                                | PROMPT CASUALTIES                                                                                                                                                      |          |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |       |                                         |                                   |
|        |                                                                | Target radius (meters)                                                                                                                                                 |          |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |       |                                         |                                   |
|        |                                                                | (meters)                                                                                                                                                               | (meters) | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 1,200                  | 1,300 | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800                                    | 2,000 |                                         |                                   |
| 2,000  | 2,200                                                          | .8/.8                                                                                                                                                                  | .6/.7    | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600                                      | 875   | 30                                      | 151                               |
| 3,000  | 2,300                                                          | .8/.8                                                                                                                                                                  | .6/.7    | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600                                      | 875   | 45                                      | 160                               |
| 4,000  | 2,300                                                          | .8/.8                                                                                                                                                                  | .6/.7    | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600                                      | 875   | 55                                      | 168                               |
| 5,000  | 2,300                                                          | .7/.8                                                                                                                                                                  | .6/.7    | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575                                      | 875   | 70                                      | 177                               |
| 6,000  | 2,300                                                          | .7/.8                                                                                                                                                                  | .6/.7    | .5/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575                                      | 875   | 85                                      | 186                               |
| 7,000  | 2,300                                                          | .7/.8                                                                                                                                                                  | .6/.7    | .5/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575                                      | 850   | 95                                      | 195                               |
| 8,000  | 2,400                                                          | .7/.8                                                                                                                                                                  | .6/.7    | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575                                      | 850   | 100                                     | 203                               |
| 9,000  | 2,400                                                          | .7/.8                                                                                                                                                                  | .6/.7    | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575                                      | 850   | 125                                     | 212                               |
| 10,000 | 2,400                                                          | .7/.8                                                                                                                                                                  | .6/.7    | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                      | 850   | 135                                     | 221                               |
| 11,000 | 2,400                                                          | .7/.8                                                                                                                                                                  | .5/.7    | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                      | 850   | 150                                     | 230                               |
| 12,000 | 2,400                                                          | .7/.8                                                                                                                                                                  | .5/.6    | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                      | 850   | 165                                     | 238                               |
| 13,000 | 2,400                                                          | .6/.8                                                                                                                                                                  | .5/.6    | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                      | 825   | 180                                     | 247                               |
| 14,000 | 2,500                                                          | .6/.8                                                                                                                                                                  | .5/.6    | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525                                      | 825   | 190                                     | 256                               |
| 15,000 | 2,500                                                          | .6/.8                                                                                                                                                                  | .5/.6    | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525                                      | 825   | 205                                     | 265                               |
| 16,000 | 2,500                                                          | .6/.7                                                                                                                                                                  | .5/.6    | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 525                                      | 825   | 220                                     | 273                               |
| 17,000 | 2,500                                                          | .6/.7                                                                                                                                                                  | .4/.6    | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 500                                      | 825   | 230                                     | 282                               |
| 18,000 | 2,500                                                          | .5/.7                                                                                                                                                                  | .4/.6    | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 500                                      | 800   | 245                                     | 291                               |
| 19,000 | 2,500                                                          | .5/.7                                                                                                                                                                  | .4/.6    | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 475                                      | 800   | 260                                     | 300                               |
| 20,000 | 2,600                                                          | .5/.7                                                                                                                                                                  | .4/.5    | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 475                                      | 800   | 270                                     | 308                               |

Figure 2.1b(2).

# PROTECTED Personnel Targets Medium-Range Cannon

LOW Airburst  
 Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |  | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |  |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |  |                                          |         |                                         |                                   |
|                   |                                                                            | 400                                                                                                                                                                    | 500   | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 |  | Prompt                                   | Delayed |                                         |                                   |
| 2,000             | 1,800                                                                      | .8/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 400                                      | 575     | 30                                      | 53                                |
| 3,000             | 1,800                                                                      | .8/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 400                                      | 575     | 45                                      | 57                                |
| 4,000             | 1,800                                                                      | .8/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 400                                      | 575     | 55                                      | 65                                |
| 5,000             | 1,800                                                                      | .8/.8                                                                                                                                                                  | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 400                                      | 575     | 70                                      | 74                                |
| 6,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 400                                      | 575     | 85                                      | 83                                |
| 7,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 400                                      | 575     | 95                                      | 92                                |
| 8,000             | 1,900                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.1 |       | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 375                                      | 575     | 110                                     | 100                               |
| 9,000             | 1,900                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 375                                      | 575     | 125                                     | 109                               |
| 10,000            | 1,900                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 375                                      | 575     | 135                                     | 118                               |
| 11,000            | 1,900                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 375                                      | 550     | 150                                     | 127                               |
| 12,000            | 1,900                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | 350                                      | 550     | 165                                     | 135                               |
| 13,000            | 1,900                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | 350                                      | 550     | 180                                     | 144                               |
| 14,000            | 2,000                                                                      | .6/.7                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .9/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 350                                      | 550     | 190                                     | 153                               |
| 15,000            | 2,000                                                                      | .5/.7                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .9/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 350                                      | 550     | 205                                     | 162                               |
| 16,000            | 2,000                                                                      | .5/.7                                                                                                                                                                  | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 325                                      | 525     | 220                                     | 170                               |
| 17,000            | 2,000                                                                      | .5/.7                                                                                                                                                                  | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 325                                      | 525     | 230                                     | 179                               |
| 18,000            | 2,000                                                                      | .5/.6                                                                                                                                                                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 |       | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 300                                      | 525     | 245                                     | 188                               |
| 19,000            | 2,000                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.1 |       |       | .8/.9                  | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 300                                      | 525     | 260                                     | 197                               |
| 20,000            | 2,100                                                                      | .4/.6                                                                                                                                                                  | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       |       | .8/.9                  | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 275                                      | 500     | 270                                     | 205                               |

Figure 2.2a(1).

HIGH Airburst  
 Reduces intensity of induced contamination. Precludes fallout.

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |  |                        |       |       |       |       |       |       |  | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|--|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |  | DELAYED CASUALTIES     |       |       |       |       |       |       |  |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |  | Target radius (meters) |       |       |       |       |       |       |  |                                          |         |                                         |                                   |
|                   |                                                                            | 400                                                                                                                                                                    | 500   | 600   | 700   | 800   | 900   | 1,000 |  | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 |  | Prompt                                   | Delayed |                                         |                                   |
| 2,000             | 1,800                                                                      | .8/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 400                                      | 575     | 30                                      | 123                               |
| 3,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 375                                      | 575     | 45                                      | 132                               |
| 4,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 375                                      | 575     | 55                                      | 140                               |
| 5,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 375                                      | 550     | 70                                      | 149                               |
| 6,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | 375                                      | 550     | 85                                      | 158                               |
| 7,000             | 1,800                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | 350                                      | 550     | 95                                      | 167                               |
| 8,000             | 1,900                                                                      | .6/.8                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 350                                      | 550     | 110                                     | 175                               |
| 9,000             | 1,900                                                                      | .6/.8                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 350                                      | 550     | 125                                     | 184                               |
| 10,000            | 1,900                                                                      | .6/.7                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 325                                      | 550     | 135                                     | 193                               |
| 11,000            | 1,900                                                                      | .5/.7                                                                                                                                                                  | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | .9/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 325                                      | 525     | 150                                     | 202                               |
| 12,000            | 1,900                                                                      | .5/.7                                                                                                                                                                  | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.1 |       |  | .9/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 300                                      | 525     | 165                                     | 210                               |
| 13,000            | 1,900                                                                      | .5/.7                                                                                                                                                                  | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       |  | .9/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | 300                                      | 525     | 180                                     | 219                               |
| 14,000            | 2,000                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       |  | .8/.9                  | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 275                                      | 500     | 190                                     | 228                               |
| 15,000            | 2,000                                                                      | .4/.6                                                                                                                                                                  | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       |  | .8/.9                  | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 275                                      | 500     | 205                                     | 237                               |
| 16,000            | 2,000                                                                      | .4/.6                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 |       |  | .8/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 250                                      | 500     | 220                                     | 245                               |
| 17,000            | 2,000                                                                      | .3/.5                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       |  | .8/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 225                                      | 475     | 230                                     | 254                               |
| 18,000            | 2,000                                                                      | .3/.5                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       |       |  | .8/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | 225                                      | 475     | 245                                     | 263                               |
| 19,000            | 2,000                                                                      | .2/.5                                                                                                                                                                  | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       |       |  | .8/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | 200                                      | 475     | 260                                     | 272                               |
| 20,000            | 2,100                                                                      | .2/.4                                                                                                                                                                  | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |  | .7/.9                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | 175                                      | 450     | 270                                     | 280                               |

Figure 2.2a(2).

**PROTECTED Personnel Targets  
Medium-Range Cannon**

**CHARLIE/2 KT**

**LOW Airburst  
Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>0</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                            | 400                                                                                                                                                                    | 500   | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                            | Delayed |                                                  |                                   |
| 2,000             | 2,200                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                               | 675     | 30                                               | 67                                |
| 3,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                               | 675     | 45                                               | 67                                |
| 4,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                               | 675     | 55                                               | 73                                |
| 5,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                               | 675     | 70                                               | 82                                |
| 6,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                               | 675     | 85                                               | 91                                |
| 7,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                               | 675     | 95                                               | 100                               |
| 8,000             | 2,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                               | 675     | 110                                              | 108                               |
| 9,000             | 2,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 125                                              | 117                               |
| 10,000            | 2,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 135                                              | 126                               |
| 11,000            | 2,400                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 650     | 150                                              | 135                               |
| 12,000            | 2,400                                                                      | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 650     | 165                                              | 143                               |
| 13,000            | 2,400                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 650     | 180                                              | 152                               |
| 14,000            | 2,500                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400                                               | 650     | 190                                              | 161                               |
| 15,000            | 2,500                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400                                               | 650     | 205                                              | 170                               |
| 16,000            | 2,500                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400                                               | 625     | 220                                              | 178                               |
| 17,000            | 2,500                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                               | 625     | 230                                              | 187                               |
| 18,000            | 2,500                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                               | 625     | 245                                              | 196                               |
| 19,000            | 2,500                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350                                               | 625     | 260                                              | 205                               |
| 20,000            | 2,600                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350                                               | 600     | 270                                              | 213                               |

Figure 2.2b(1).

**HIGH Airburst  
Reduces intensity of induced contamination. Precludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |      |      |      |      |      |       |       |                        |      |      |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>0</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|-------|-------|------------------------|------|------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |      |      |      |      |      |       |       | DELAYED CASUALTIES     |      |      |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |      |      |      |      |      |       |       | Target radius (meters) |      |      |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                            | 400                                                                                                                                                                    | 500  | 600  | 700  | 800  | 900  | 1,000 | 1,100 | 400                    | 600  | 800  | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                            | Delayed |                                                  |                                   |
| 2,000             | 2,200                                                                      | .8/9                                                                                                                                                                   | .7/8 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2  | .1/2  | .9/9                   | .8/9 | .6/7 | .4/4  | .2/3  | .2/2  | .1/2  | .1/1  | 425                                               | 675     | 30                                               | 151                               |
| 3,000             | 2,300                                                                      | .8/9                                                                                                                                                                   | .6/8 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .6/7 | .4/4  | .2/3  | .2/2  | .1/2  | .1/1  | 425                                               | 675     | 45                                               | 160                               |
| 4,000             | 2,300                                                                      | .8/9                                                                                                                                                                   | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .6/7 | .4/4  | .2/3  | .2/2  | .1/2  | .1/1  | 425                                               | 650     | 55                                               | 168                               |
| 5,000             | 2,300                                                                      | .8/9                                                                                                                                                                   | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .6/7 | .4/4  | .2/3  | .2/2  | .1/2  | .1/1  | 425                                               | 650     | 70                                               | 177                               |
| 6,000             | 2,300                                                                      | .8/9                                                                                                                                                                   | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .6/7 | .4/4  | .2/3  | .2/2  | .1/2  | .1/1  | 425                                               | 650     | 85                                               | 186                               |
| 7,000             | 2,300                                                                      | .8/9                                                                                                                                                                   | .6/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .6/7 | .3/4  | .2/3  | .2/2  | .1/2  | .1/1  | 400                                               | 650     | 95                                               | 195                               |
| 8,000             | 2,400                                                                      | .7/9                                                                                                                                                                   | .5/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .6/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 400                                               | 650     | 110                                              | 203                               |
| 9,000             | 2,400                                                                      | .7/8                                                                                                                                                                   | .5/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 400                                               | 625     | 125                                              | 212                               |
| 10,000            | 2,400                                                                      | .7/8                                                                                                                                                                   | .5/6 | .3/5 | .2/3 | .2/3 | .1/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 375                                               | 625     | 135                                              | 221                               |
| 11,000            | 2,400                                                                      | .7/8                                                                                                                                                                   | .5/6 | .3/5 | .2/3 | .2/3 | .1/2 | .1/2  | .1/1  | .9/9                   | .8/9 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 375                                               | 625     | 150                                              | 230                               |
| 12,000            | 2,400                                                                      | .6/8                                                                                                                                                                   | .5/6 | .3/4 | .2/3 | .1/3 | .1/2 | .1/1  |       | .9/9                   | .8/9 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 350                                               | 625     | 165                                              | 238                               |
| 13,000            | 2,400                                                                      | .6/8                                                                                                                                                                   | .4/6 | .3/4 | .2/3 | .1/2 | .1/2 | .1/1  |       | .9/9                   | .8/9 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 350                                               | 600     | 180                                              | 247                               |
| 14,000            | 2,500                                                                      | .6/7                                                                                                                                                                   | .4/6 | .3/4 | .2/3 | .1/2 | .1/2 | .1/1  |       | .9/9                   | .7/8 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 350                                               | 600     | 190                                              | 256                               |
| 15,000            | 2,500                                                                      | .5/7                                                                                                                                                                   | .4/5 | .2/4 | .2/3 | .1/2 | .1/2 | .1/1  |       | .9/9                   | .7/8 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 325                                               | 600     | 205                                              | 265                               |
| 16,000            | 2,500                                                                      | .5/7                                                                                                                                                                   | .3/5 | .2/4 | .1/3 | .1/2 | .1/2 | .0/1  |       | .9/9                   | .7/8 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 300                                               | 600     | 220                                              | 273                               |
| 17,000            | 2,500                                                                      | .4/7                                                                                                                                                                   | .3/5 | .2/4 | .1/3 | .1/2 | .1/2 | .0/1  |       | .9/9                   | .7/8 | .5/6 | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 300                                               | 575     | 230                                              | 282                               |
| 18,000            | 2,500                                                                      | .4/6                                                                                                                                                                   | .3/5 | .2/4 | .1/3 | .1/2 | .0/2 | .0/1  |       | .9/9                   | .7/8 | .4/6 | .3/4  | .2/3  | .1/2  | .1/2  | .0/1  | 275                                               | 575     | 245                                              | 291                               |
| 19,000            | 2,500                                                                      | .3/6                                                                                                                                                                   | .2/4 | .1/3 | .1/3 | .1/2 | .0/1 |       |       | .9/9                   | .7/8 | .4/6 | .3/4  | .2/3  | .1/2  | .1/2  | .0/1  | 250                                               | 575     | 260                                              | 300                               |
| 20,000            | 2,600                                                                      | .3/6                                                                                                                                                                   | .2/4 | .1/3 | .1/2 | .0/2 | .0/1 |       |       | .8/9                   | .6/8 | .4/6 | .2/4  | .2/3  | .1/2  | .1/1  |       | 225                                               | 550     | 270                                              | 308                               |

Figure 2.2b(2).

# MATERIEL Targets Medium-Range Cannon

LOW Airburst  
Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |       |       |       |       |       |       | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-----------------------------------------|-----------------------------------|-------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               | TANKS AND ARTILLERY    |       |       |       |       |       |       |                                         |                                   |                               |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                         |                                   | Prob min<br>$R_D$<br>(meters) |
|                   |                                                                            | 150                                                                                                                                                                    | 200   | 250   | 300   | 350   | 400   | 450   | 500   |                               | 100                    | 150   | 200   | 250   | 300   | 350   | 400   |                                         |                                   |                               |
| 2,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | 250                           | .9/.9                  | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 150                                     | 30                                | 53                            |
| 3,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | 250                           | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 150                                     | 45                                | 57                            |
| 4,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | 250                           | .8/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 125                                     | 55                                | 65                            |
| 5,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | 250                           | .7/.9                  | .4/.7 | .2/.5 | .1/.3 | .1/.2 | .0/.1 |       | 100                                     | 70                                | 74                            |
| 6,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | 225                           | .5/.8                  | .2/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.1 |       | 75                                      | 85                                | 83                            |
| 7,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | 225                           | .3/.7                  | .1/.5 | .1/.3 | .0/.2 | .0/.1 |       |       | 75                                      | 95                                | 92                            |
| 8,000             | 1,900                                                                      | .8/.9                                                                                                                                                                  | .7/.9 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | 225                           | .1/.6                  | .0/.3 | .0/.2 | .0/.1 |       |       |       | 50                                      | 110                               | 100                           |
| 9,000             | 1,900                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 200                           | .0/.5                  | .0/.3 | .0/.2 | .0/.1 |       |       |       | 25                                      | 125                               | 109                           |
| 10,000            | 1,900                                                                      | .7/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | 175                           | .0/.4                  | .0/.2 | .0/.1 |       |       |       |       | 0                                       | 135                               | 118                           |
| 11,000            | 1,900                                                                      | .5/.8                                                                                                                                                                  | .4/.7 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 125                           | .0/.3                  | .0/.2 | .0/.1 |       |       |       |       | 0                                       | 150                               | 127                           |
| 12,000            | 1,900                                                                      | .3/.7                                                                                                                                                                  | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | 75                            | .0/.3                  | .0/.2 | .0/.1 |       |       |       |       | 0                                       | 165                               | 135                           |
| 13,000            | 1,900                                                                      | .1/.7                                                                                                                                                                  | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 50                            | .0/.3                  | .0/.1 |       |       |       |       |       | 0                                       | 180                               | 144                           |
| 14,000            | 2,000                                                                      | .0/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 25                            | .0/.2                  | .0/.1 |       |       |       |       |       | 0                                       | 190                               | 153                           |
| 15,000            | 2,000                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       | 0                                       | 205                               | 162                           |
| 16,000            | 2,000                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       | 0                                       | 220                               | 170                           |
| 17,000            | 2,000                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             | .0/.1                  |       |       |       |       |       |       | 0                                       | 230                               | 179                           |
| 18,000            | 2,000                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             | .0/.1                  |       |       |       |       |       |       | 0                                       | 245                               | 188                           |
| 19,000            | 2,000                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       | 0                                       | 260                               | 197                           |
| 20,000            | 2,100                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       | 0                                       | 270                               | 205                           |

Figure 2.3a(1).

HIGH Airburst  
Reduces intensity of induced contamination. Precludes fallout.

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |       |       |  |  |  |                               | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |     |     |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|--|--|--|-------------------------------|-----------------------------------------|-----------------------------------|-----|-----|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               | TANKS AND ARTILLERY    |       |       |  |  |  |                               |                                         |                                   |     |     |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |       |  |  |  | Prob min<br>$R_D$<br>(meters) |                                         |                                   |     |     |
|                   |                                                                            | 100                                                                                                                                                                    | 150   | 200   | 250   | 300   | 350   | 400   | 450   |                               | 100                    | 150   | 200   |  |  |  |                               |                                         |                                   |     |     |
| 2,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | 225                           | .2/.4                  | .1/.2 | .0/.1 |  |  |  |                               |                                         | 50                                | 30  | 123 |
| 3,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | 200                           | .1/.3                  | .0/.1 |       |  |  |  |                               |                                         | 25                                | 45  | 132 |
| 4,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 200                           | .0/.2                  | .0/.1 |       |  |  |  |                               |                                         | 25                                | 55  | 140 |
| 5,000             | 1,800                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | 150                           | .0/.1                  |       |       |  |  |  |                               |                                         | 0                                 | 70  | 149 |
| 6,000             | 1,800                                                                      | .7/.9                                                                                                                                                                  | .4/.8 | .2/.7 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | 100                           | .0/.1                  |       |       |  |  |  |                               |                                         | 0                                 | 85  | 158 |
| 7,000             | 1,800                                                                      | .4/.8                                                                                                                                                                  | .2/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 75                            | .0/.1                  |       |       |  |  |  |                               |                                         | 0                                 | 95  | 167 |
| 8,000             | 1,900                                                                      | .1/.7                                                                                                                                                                  | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 25                            | .0/.1                  |       |       |  |  |  |                               |                                         | 0                                 | 110 | 175 |
| 9,000             | 1,900                                                                      | .0/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 125 | 184 |
| 10,000            | 1,900                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 135 | 193 |
| 11,000            | 1,900                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 150 | 202 |
| 12,000            | 1,900                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 165 | 210 |
| 13,000            | 1,900                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 180 | 219 |
| 14,000            | 2,000                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 190 | 228 |
| 15,000            | 2,000                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 205 | 237 |
| 16,000            | 2,000                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 220 | 245 |
| 17,000            | 2,000                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 230 | 254 |
| 18,000            | 2,000                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 245 | 263 |
| 19,000            | 2,000                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 260 | 272 |
| 20,000            | 2,100                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |  |  |  |                               |                                         | 0                                 | 270 | 280 |

Figure 2.3a(2).

**MATERIEL Targets**  
**Medium-Range Cannon**

**CHARLIE/2 KT**

**LOW Airburst**  
**Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                                        |                        |       |       |       |       |       |       |       | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |                                        |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|--------------------------------------------------|-----------------------------------|----------------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                                        | TANKS AND ARTILLERY    |       |       |       |       |       |       |       |                                                  |                                   |                                        |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |       |                                                  |                                   | Prob min<br>R <sub>D</sub><br>(meters) |
|                   |                                                                            | 350                                                                                                                                                                    | 400   | 450   | 500   | 550   | 600   | 650   | 700   |                                        | 150                    | 200   | 250   | 300   | 350   | 400   | 450   | 500   |                                                  |                                   |                                        |
| 2,000             | 2,200                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 350                                    | .9/.9                  | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 200                                              | 30                                | 67                                     |
| 3,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 350                                    | .9/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 200                                              | 45                                | 67                                     |
| 4,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 350                                    | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.1 | 200                                              | 55                                | 73                                     |
| 5,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 325                                    | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 175                                              | 70                                | 82                                     |
| 6,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 325                                    | .7/.9                  | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 150                                              | 85                                | 91                                     |
| 7,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 325                                    | .5/.8                  | .3/.6 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 125                                              | 95                                | 100                                    |
| 8,000             | 2,400                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 300                                    | .4/.7                  | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 100                                              | 110                               | 108                                    |
| 9,000             | 2,400                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | 300                                    | .2/.6                  | .1/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 75                                               | 125                               | 117                                    |
| 10,000            | 2,400                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 275                                    | .1/.5                  | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 50                                               | 135                               | 126                                    |
| 11,000            | 2,400                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 275                                    | .1/.5                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 50                                               | 150                               | 135                                    |
| 12,000            | 2,400                                                                      | .5/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 250                                    | .0/.4                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 25                                               | 165                               | 143                                    |
| 13,000            | 2,400                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 225                                    | .0/.3                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                                                | 180                               | 152                                    |
| 14,000            | 2,500                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 150                                    | .0/.3                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                                                | 190                               | 161                                    |
| 15,000            | 2,500                                                                      | .1/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 100                                    | .0/.2                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                                | 205                               | 170                                    |
| 16,000            | 2,500                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 75                                     | .0/.2                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                                | 220                               | 178                                    |
| 17,000            | 2,500                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 50                                     | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                                | 230                               | 187                                    |
| 18,000            | 2,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 |       | 25                                     | .0/.1                  |       |       |       |       |       |       |       | 0                                                | 245                               | 196                                    |
| 19,000            | 2,500                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                      | .0/.1                  |       |       |       |       |       |       |       | 0                                                | 260                               | 205                                    |
| 20,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                      | .0/.1                  |       |       |       |       |       |       |       | 0                                                | 270                               | 213                                    |

Figure 2.3b(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                                        |                        |       |       |       |  |  |  |    | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |                                        |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------|------------------------|-------|-------|-------|--|--|--|----|--------------------------------------------------|-----------------------------------|----------------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                                        | TANKS AND ARTILLERY    |       |       |       |  |  |  |    |                                                  |                                   |                                        |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |  |  |  |    |                                                  |                                   | Prob min<br>R <sub>D</sub><br>(meters) |
|                   |                                                                            | 300                                                                                                                                                                    | 350   | 400   | 450   | 500   | 550   | 600   | 650   |                                        | 100                    | 150   | 200   | 250   |  |  |  |    |                                                  |                                   |                                        |
| 2,000             | 2,200                                                                      | .8/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 300                                    | .6/.8                  | .2/.4 | .1/.2 | .1/.1 |  |  |  |    | 75                                               | 30                                | 151                                    |
| 3,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 275                                    | .3/.6                  | .1/.3 | .0/.2 | .0/.1 |  |  |  |    | 50                                               | 45                                | 160                                    |
| 4,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.3 | .1/.2 | 275                                    | .1/.5                  | .0/.2 | .0/.1 |       |  |  |  | 50 | 55                                               | 168                               |                                        |
| 5,000             | 2,300                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 250                                    | .0/.3                  | .0/.2 | .0/.1 |       |  |  |  | 25 | 70                                               | 177                               |                                        |
| 6,000             | 2,300                                                                      | .6/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 225                                    | .0/.2                  | .0/.1 |       |       |  |  |  | 0  | 85                                               | 186                               |                                        |
| 7,000             | 2,300                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 150                                    | .0/.2                  | .0/.1 |       |       |  |  |  | 0  | 95                                               | 195                               |                                        |
| 8,000             | 2,400                                                                      | .1/.6                                                                                                                                                                  | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 100                                    | .0/.1                  |       |       |       |  |  |  | 0  | 110                                              | 203                               |                                        |
| 9,000             | 2,400                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 75                                     | .0/.1                  |       |       |       |  |  |  | 0  | 125                                              | 212                               |                                        |
| 10,000            | 2,400                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 50                                     | .0/.1                  |       |       |       |  |  |  | 0  | 135                                              | 221                               |                                        |
| 11,000            | 2,400                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 25                                     | .0/.1                  |       |       |       |  |  |  | 0  | 150                                              | 230                               |                                        |
| 12,000            | 2,400                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                                      | .0/.1                  |       |       |       |  |  |  | 0  | 165                                              | 238                               |                                        |
| 13,000            | 2,400                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                                      | .0/.1                  |       |       |       |  |  |  | 0  | 180                                              | 247                               |                                        |
| 14,000            | 2,500                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                      |                        |       |       |       |  |  |  | 0  | 190                                              | 256                               |                                        |
| 15,000            | 2,500                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0                                      |                        |       |       |       |  |  |  | 0  | 205                                              | 265                               |                                        |
| 16,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                                      |                        |       |       |       |  |  |  | 0  | 220                                              | 273                               |                                        |
| 17,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                                      |                        |       |       |       |  |  |  | 0  | 230                                              | 282                               |                                        |
| 18,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                                      |                        |       |       |       |  |  |  | 0  | 245                                              | 291                               |                                        |
| 19,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                                      |                        |       |       |       |  |  |  | 0  | 260                                              | 300                               |                                        |
| 20,000            | 2,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                                      |                        |       |       |       |  |  |  | 0  | 270                                              | 308                               |                                        |

Figure 2.3b(2).

<sup>1</sup>Medium-Range Cannon.

# **Troop Safety Distances—Meters** **Medium-Range Cannon**

**BRAVO/1 KT**

## **LOW Airburst**

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 2,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,400                            | 1,300       | 1,000         |
| 3,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,400                            | 1,300       | 1,100         |
| 4,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 5,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 6,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 7,000             | 1,800                                                                         | 1,600       | 1,400         | 1,800                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 8,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 9,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,200         |
| 10,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 11,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 12,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 13,000            | 1,900                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 14,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 15,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 16,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 17,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 18,000            | 2,000                                                                         | 1,800       | 1,500         | 2,000                          | 1,800       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 19,000            | 2,000                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 20,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |

Figure 2.4a(1).

## **HIGH Airburst**

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 2,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,400                            | 1,300       | 1,000         |
| 3,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,400                            | 1,300       | 1,000         |
| 4,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 5,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 6,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 7,000             | 1,800                                                                         | 1,600       | 1,400         | 1,800                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 8,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 9,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 10,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 11,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 12,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 13,000            | 1,900                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 14,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 15,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 16,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 17,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 18,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 19,000            | 2,000                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 20,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |

Figure 2.4a(2).

**CHARLIE/2 KT**

## **LOW Airburst**

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 2,000             | 2,200                                                                         | 1,700       | 1,400         | 1,800                          | 1,600       | 1,400         | 1,500                            | 1,300       | 1,000         |
| 3,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,300       | 1,100         |
| 4,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 5,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 6,000             | 2,300                                                                         | 1,700       | 1,500         | 1,900                          | 1,600       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 7,000             | 2,300                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 8,000             | 2,400                                                                         | 1,800       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 9,000             | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,200         |
| 10,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 11,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 12,000            | 2,400                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 13,000            | 2,400                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 14,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 15,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,300         |
| 16,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 17,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 18,000            | 2,500                                                                         | 1,900       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 19,000            | 2,500                                                                         | 2,000       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 20,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,400         |

Figure 2.4b(1).

## **HIGH Airburst**

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 2,000             | 2,200                                                                         | 1,700       | 1,400         | 1,800                          | 1,600       | 1,400         | 1,500                            | 1,300       | 1,000         |
| 3,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,300       | 1,100         |
| 4,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 5,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 6,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,100         |
| 7,000             | 2,300                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 8,000             | 2,400                                                                         | 1,800       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 9,000             | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,200         |
| 10,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 11,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 12,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,200         |
| 13,000            | 2,400                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 14,000            | 2,500                                                                         | 1,900       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 15,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,300         |
| 16,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 17,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 18,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 19,000            | 2,500                                                                         | 1,900       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 20,000            | 2,600                                                                         | 2,000       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |

Figure 2.4b(2).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 2.5 for special friendly troop orientation.



# SUPPLEMENTARY TROOP SAFETY Tables Medium-Range Cannon—All Yields

The troop safety distances in figures 2.4a(1) through 2.4b(2) are based on the friendly troop orientation shown in figure 1, below. The elliptical delivery pattern of the medium-range cannon may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

## Special Troop Safety Orientations

### LEGEND

DGZ - Desired ground zero.

$R_s$  - Safety radius.

$d_b$  - Buffer distance.

~~~~~ Friendly troops.

→ Direction of fire.

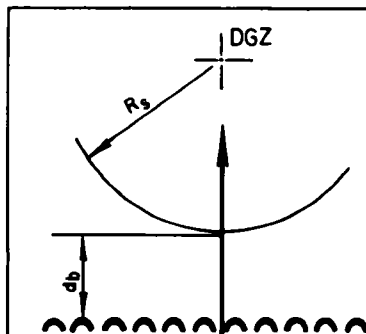


Figure 1. Straight line, perpendicular delivery.

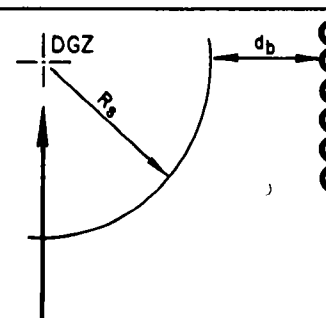


Figure 2. Straight line, parallel delivery.

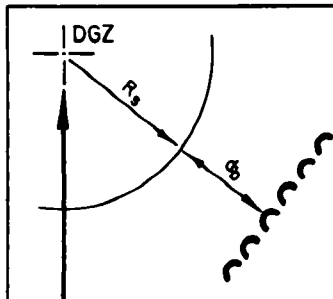


Figure 3. Straight-line, 45° delivery.

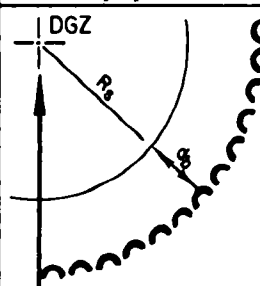


Figure 4. Quarter circle.

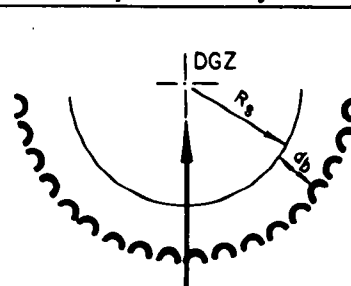


Figure 5. Half circle.

When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figure 2.4a(1) through 2.4b(2) must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options—All Yields | | | | | | | | | |
|--|-------------------|---------------|---------|---------|----------|-------------------|---------------|---------|---------|
| Range | Straight-line | Straight-line | Quarter | Half | Range | Straight-line | Straight-line | Quarter | Half |
| (meters) | parallel delivery | 45° delivery | circle | circle | (meters) | parallel delivery | 45° delivery | circle | circle |
| | (Fig 2) | (Fig 3) | (Fig 4) | (Fig 5) | | (Fig 2) | (Fig 3) | (Fig 4) | (Fig 5) |
| 2,000 | 0 | 0 | +100 | +100 | 19,000 | -100 | 0 | +100 | +100 |
| 3,000 | 0 | 0 | +100 | +100 | 20,000 | -100 | 0 | +100 | +100 |
| 4,000 | 0 | 0 | +100 | +100 | | | | | |
| 5,000 | 0 | 0 | +100 | +100 | | | | | |
| 6,000 | 0 | 0 | +100 | +100 | | | | | |
| 7,000 | 0 | 0 | +100 | +100 | | | | | |
| 8,000 | 0 | 0 | +100 | +100 | | | | | |
| 9,000 | 0 | 0 | +100 | +100 | | | | | |
| 10,000 | 0 | 0 | +100 | +100 | | | | | |
| 11,000 | 0 | 0 | +100 | +100 | | | | | |
| 12,000 | -100 | 0 | +100 | +100 | | | | | |
| 13,000 | -100 | 0 | +100 | +100 | | | | | |
| 14,000 | -100 | 0 | +100 | +100 | | | | | |
| 15,000 | -100 | 0 | +100 | +100 | | | | | |
| 16,000 | -100 | 0 | +100 | +100 | | | | | |
| 17,000 | -100 | 0 | +100 | +100 | | | | | |
| 18,000 | -100 | 0 | +100 | +100 | | | | | |

Figure 2.5.

CASUALTY and DAMAGE Tables
Medium-Range Cannon

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-----|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelter | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 825 | | | | | | | | | | | | | 1,450 | 1,125 | 850 | 1,450 | 1,125 | 850 | 1,075 | 850 | 475 |
| 800 | | 0 | | | | | | | | | | | 1,475 | 1,150 | 875 | 1,475 | 1,150 | 875 | 1,100 | 875 | 525 |
| 775 | | 125 | | | | | | | | | | 0 | 1,475 | 1,150 | 900 | 1,475 | 1,150 | 900 | 1,100 | 900 | 550 |
| 750 | | 225 | | | | | 0 | | | | | 150 | 1,500 | 1,175 | 925 | 1,500 | 1,175 | 925 | 1,125 | 925 | 600 |
| 725 | | 300 | | | | | 125 | | | 0 | | 250 | 1,500 | 1,200 | 950 | 1,500 | 1,200 | 950 | 1,150 | 950 | 625 |
| 700 | | 350 | | | | | 225 | | | 100 | | 300 | 1,525 | 1,200 | 950 | 1,525 | 1,200 | 950 | 1,150 | 950 | 650 |
| 675 | | 400 | | | | | 300 | | | 200 | | 350 | 1,525 | 1,225 | 975 | 1,525 | 1,225 | 975 | 1,175 | 975 | 675 |
| 650 | | 450 | | | | | 350 | | | 275 | | 400 | 1,550 | 1,225 | 1,000 | 1,550 | 1,225 | 1,000 | 1,200 | 1,000 | 700 |
| 625 | | 475 | | | | | 400 | | | 325 | | 450 | 1,550 | 1,250 | 1,000 | 1,550 | 1,250 | 1,000 | 1,200 | 1,000 | 725 |
| 600 | | 500 | | 0 | | | 425 | | | 375 | | 475 | 1,550 | 1,250 | 1,025 | 1,550 | 1,250 | 1,025 | 1,225 | 1,025 | 750 |
| 575 | 0 | 550 | | 125 | | | 450 | | | 400 | 0 | 500 | 1,575 | 1,275 | 1,050 | 1,575 | 1,275 | 1,050 | 1,225 | 1,050 | 775 |
| 550 | 125 | 550 | | 225 | 0 | | 500 | | | 450 | 325 | 525 | 1,575 | 1,275 | 1,050 | 1,575 | 1,275 | 1,050 | 1,250 | 1,050 | 800 |
| 525 | 200 | 575 | | 275 | 75 | | 525 | | 0 | 475 | 400 | 550 | 1,575 | 1,300 | 1,075 | 1,575 | 1,300 | 1,075 | 1,250 | 1,075 | 800 |
| 500 | 275 | 600 | | 300 | 175 | | 550 | | 75 | 500 | 475 | 575 | 1,600 | 1,300 | 1,075 | 1,600 | 1,300 | 1,075 | 1,250 | 1,075 | 825 |
| 475 | 300 | 625 | | 350 | 225 | | 550 | 0 | 175 | 525 | 550 | 600 | 1,600 | 1,300 | 1,100 | 1,600 | 1,300 | 1,100 | 1,275 | 1,100 | 825 |
| 450 | 350 | 650 | | 375 | 275 | | 575 | 50 | 225 | 550 | 600 | 625 | 1,600 | 1,325 | 1,100 | 1,600 | 1,325 | 1,100 | 1,275 | 1,100 | 850 |
| 425 | 375 | 650 | 0 | 400 | 325 | | 600 | 150 | 275 | 550 | 700 | 700 | 1,625 | 1,325 | 1,100 | 1,625 | 1,325 | 1,100 | 1,300 | 1,100 | 850 |
| 400 | 400 | 675 | 100 | 425 | 350 | | 625 | | 225 | 300 | 575 | 950 | 1,625 | 1,325 | 1,125 | 1,625 | 1,325 | 1,125 | 1,300 | 1,125 | 875 |
| 375 | 425 | 700 | 175 | 450 | 375 | | 625 | | 250 | 350 | 600 | 975 | 1,625 | 1,350 | 1,125 | 1,625 | 1,350 | 1,125 | 1,300 | 1,125 | 875 |
| 350 | 450 | 700 | 225 | 475 | 400 | | 650 | | 300 | 375 | 600 | 1,000 | 1,625 | 1,350 | 1,125 | 1,625 | 1,350 | 1,125 | 1,300 | 1,125 | 900 |
| 325 | 475 | 725 | 250 | 500 | 425 | | 650 | | 325 | 400 | 625 | 1,000 | 1,650 | 1,350 | 1,150 | 1,650 | 1,350 | 1,150 | 1,325 | 1,150 | 900 |
| 300 | 475 | 725 | 275 | 500 | 425 | | 675 | 0 | 350 | 550 | 625 | 975 | 1,650 | 1,350 | 1,150 | 1,650 | 1,350 | 1,150 | 1,325 | 1,150 | 900 |
| 275 | 500 | 725 | 300 | 525 | 450 | | 675 | 125 | 375 | 575 | 650 | 950 | 1,650 | 1,375 | 1,150 | 1,650 | 1,375 | 1,150 | 1,325 | 1,150 | 925 |
| 250 | 500 | 750 | 325 | 525 | 475 | | 700 | 175 | 375 | 575 | 650 | 925 | 1,650 | 1,375 | 1,150 | 1,650 | 1,375 | 1,150 | 1,325 | 1,150 | 925 |
| 225 | 525 | 750 | 350 | 550 | 475 | | 700 | 200 | 400 | 575 | 675 | 875 | 1,650 | 1,375 | 1,175 | 1,650 | 1,375 | 1,175 | 1,350 | 1,175 | 925 |
| 200 | 525 | 750 | 350 | 550 | 500 | | 700 | 225 | 400 | 575 | 675 | 850 | 1,650 | 1,375 | 1,175 | 1,650 | 1,375 | 1,175 | 1,350 | 1,175 | 950 |
| 175 | 550 | 775 | 375 | 575 | 500 | | 725 | 250 | 425 | 525 | 675 | 800 | 1,650 | 1,375 | 1,175 | 1,650 | 1,375 | 1,175 | 1,350 | 1,175 | 950 |
| 150 | 550 | 775 | 375 | 575 | 500 | | 725 | 250 | 425 | 500 | 700 | 775 | 1,650 | 1,375 | 1,175 | 1,650 | 1,375 | 1,175 | 1,350 | 1,175 | 950 |
| 125 | 550 | 775 | 400 | 575 | 525 | | 725 | 275 | 450 | 500 | 700 | 750 | 1,675 | 1,375 | 1,175 | 1,675 | 1,375 | 1,175 | 1,350 | 1,175 | 950 |
| 100 | 550 | 775 | 400 | 575 | 525 | | 725 | 275 | 450 | 500 | 700 | 725 | 1,675 | 1,400 | 1,175 | 1,675 | 1,400 | 1,175 | 1,350 | 1,175 | 950 |
| 75 | 550 | 775 | 400 | 575 | 525 | | 725 | 300 | 450 | 500 | 700 | 750 | 1,675 | 1,400 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,175 | 950 |
| 50 | 550 | 775 | 400 | 600 | 525 | | 725 | 300 | 450 | 500 | 700 | 675 | 1,675 | 1,400 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,200 | 950 |
| 25 | 550 | 775 | 400 | 600 | 525 | | 725 | 300 | 450 | 500 | 700 | 650 | 1,675 | 1,400 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,200 | 950 |
| 0 | 550 | 775 | 400 | 600 | 525 | | 725 | 300 | 450 | 500 | 700 | 650 | 1,675 | 1,400 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,200 | 950 |

HOB_f = 30 mLow HOB_{min} = 53 mHigh HOB_{min} = 120 mHOB₉₉ = HOB_f + 3.5 PE_h mHOB₉₈ = HOB_f + 3.0 PE_h mHOB₉₀ = HOB_f + 1.9 PE_h m

Figure 2.6a.

CASUALTY and DAMAGE Tables Medium-Range Cannon

BRAVO/1 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | |
|-----|-------------------------------|----------------------------------|------------------------------|--|--|----------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|--|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
bridge | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV | |
| 825 | | | | | | | | | | 1,550 | | | 0-5 | | | | 0-500 | | |
| 800 | | | | | | | | | | 1,575 | | | 0-5 | | | | 0-550 | | |
| 775 | | | | | | | | | | 1,600 | | | 0-10 | | | | 0-550 | | |
| 750 | | | | | | | 0 | | | 1,625 | | | 0-10 | | | | 0-600 | | |
| 725 | | | | | | | 200 | | | 1,650 | | | 0-10 | | | | 0-650 | | |
| 700 | | | | | | | 275 | | | 1,650 | | | 0-10 | | | | 0-650 | | |
| 675 | | | | | | | 325 | | | 1,675 | | | 0-15 | | | | 0-700 | | |
| 650 | | | | | | | 375 | | | 1,675 | | | 0-20 | | | | 0-700 | | |
| 625 | | | | | | | 425 | | | 1,675 | | 0 | 0-20 | | | 0 | 0-750 | | |
| 600 | | | | | | | 450 | | | 1,675 | | 0-5 | 0-25 | | | 0-50 | 0-750 | | |
| 575 | | | | | | | 475 | | | 1,700 | | 0-5 | 0-30 | | | 0-200 | 0-800 | | |
| 550 | | | | | | | 500 | | | 1,700 | | 0-5 | 0-40 | | | 0-250 | 0-800 | | |
| 525 | | | | | | | 525 | | | 1,700 | | 0-5 | 0-50 | | | 0-300 | 0-800 | | |
| 500 | | | | | | | 550 | | | 1,700 | | 0-5 | 0-60 | | | 0-350 | 0-800 | | |
| 475 | | | | | | | 575 | | | 1,700 | | 0-10 | 0-90 | | | 0-400 | 0-850 | | |
| 450 | | | | | | | 600 | | | 1,700 | | 0-10 | 5-120 | | | 0-400 | 50-850 | | |
| 425 | | | | | | | 625 | | | 1,700 | 0 | 0-15 | 10-150 | | 0 | 0-450 | 150-900 | | |
| 400 | | | | | | | 625 | | | 1,700 | 0-5 | 0-20 | 10-200 | | 0-50 | 0-450 | 200-900 | | |
| 375 | | | | | | | 650 | | | 1,675 | 0-5 | 0-25 | 15-260 | | 0-150 | 0-500 | 250-900 | | |
| 350 | | | | | | | 675 | 0 | | 1,675 | 0-5 | 0-30 | 15-320 | | 0-200 | 0-500 | 300-900 | | |
| 325 | | | | | | | 675 | 125 | | 1,650 | 0-5 | 0-35 | 20-400 | | 0-250 | 0-500 | 350-900 | | |
| 300 | | | | 0 | | | 675 | 175 | | 1,650 | 0-5 | 5-40 | 20-480 | | 0-300 | 50-550 | 350-950 | | |
| 275 | | | | 25 | | | 700 | 200 | | 1,625 | 0-10 | 5-50 | 25-580 | | 0-300 | 150-550 | 400-950 | | |
| 250 | | | | 75 | | | 700 | 250 | | 1,600 | 0-10 | 5-55 | 30-660 | | 0-350 | 200-550 | 400-950 | | |
| 225 | 0 | | | 125 | | | 725 | 250 | | 1,600 | 0-10 | 5-65 | 35-780 | | 0-350 | 200-600 | 400-950 | | |
| 200 | 50 | | 0 | 150 | | 0 | 725 | 275 | 0 | 1,575 | 0-10 | 5-90 | 50-1,080 | | 0-350 | 250-600 | 450-950 | | |
| 175 | 150 | 0 | 25 | 175 | | 250 | 725 | 300 | 50 | 1,550 | 0-15 | 5-110 | 60-1,320 | | 0-400 | 250-600 | 450-950 | | |
| 150 | 200 | 25 | 75 | 200 | | 250 | 725 | 300 | 100 | 1,525 | 0-15 | 10-140 | 70-1,680 | | 0-400 | 300-600 | 450-950 | | |
| 125 | 225 | 50 | 100 | 225 | | 250 | 750 | 325 | 125 | 1,500 | 0-20 | 10-185 | 90-2,220 | | 0-400 | 300-600 | 450-950 | | |
| 100 | 250 | 100 | 125 | 225 | 0 | 275 | 750 | 325 | 150 | 1,475 | 0-25 | 10-225 | 110-2,700 | | 0-400 | 300-600 | 450-950 | | |
| 75 | 250 | 150 | 125 | 250 | 225 | 275 | 750 | 325 | 175 | 1,450 | 0-35 | 15-290 | 140-3,500 | | 0-400 | 300-600 | 450-950 | | |
| 50 | 250 | 150 | 150 | 250 | 250 | 275 | 725 | 325 | 175 | 1,400 | 5-40 | 15-350 | 170-4,200 | 0 | 50-400 | 300-600 | 450-950 | | |
| 25 | 250 | 150 | 150 | 250 | 225 | 250 | 575 | 350 | 150 | 1,375 | FALLOUT GOVERNS | | | | | | | | |
| 0 | 175 | 125 | 100 | 200 | 150 | 200 | 450 | 250 | 125 | 1,325 | | | | | | | | | |

MRC 1

Figure 2.6a continued.

CASUALTY and DAMAGE Tables
Medium-Range Cannon

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-----|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 900 | | 0 | | | | | | | | | | | 1,975 | 1,300 | 950 | 1,525 | 1,200 | 950 | 1,125 | 800 | 325 |
| 875 | | 175 | | | | | | | | | | | 1,975 | 1,300 | 950 | 1,525 | 1,200 | 950 | 1,150 | 825 | 400 |
| 850 | | 275 | | | | | | | | | | | 2,000 | 1,325 | 975 | 1,550 | 1,225 | 975 | 1,150 | 850 | 450 |
| 825 | | 350 | | | | | | | | | | | 2,000 | 1,350 | 1,000 | 1,550 | 1,250 | 1,000 | 1,175 | 875 | 500 |
| 800 | | 400 | | | | | | | | | | | 2,025 | 1,350 | 1,025 | 1,575 | 1,275 | 1,025 | 1,200 | 900 | 525 |
| 775 | | 450 | | | | | | | | | | | 2,025 | 1,375 | 1,050 | 1,575 | 1,275 | 1,050 | 1,225 | 925 | 575 |
| 750 | | 475 | | | | | | | | | | | 2,025 | 1,400 | 1,075 | 1,600 | 1,300 | 1,075 | 1,225 | 950 | 600 |
| 725 | | 525 | | | | | | | | | | | 2,050 | 1,400 | 1,075 | 1,600 | 1,300 | 1,075 | 1,250 | 975 | 625 |
| 700 | | 550 | | | | | | | | | | | 2,050 | 1,400 | 1,100 | 1,625 | 1,325 | 1,100 | 1,250 | 1,000 | 650 |
| 675 | | 575 | | | | | | | | | | | 2,050 | 1,425 | 1,100 | 1,625 | 1,325 | 1,100 | 1,275 | 1,000 | 675 |
| 650 | | 600 | | | | | | | | | | | 2,075 | 1,425 | 1,125 | 1,650 | 1,350 | 1,125 | 1,275 | 1,025 | 700 |
| 625 | 0 | 625 | | | | | | | | | | | 2,075 | 1,450 | 1,150 | 1,650 | 1,350 | 1,150 | 1,300 | 1,050 | 725 |
| 600 | 150 | 650 | | | | | | | | | | | 2,075 | 1,450 | 1,150 | 1,650 | 1,375 | 1,150 | 1,300 | 1,050 | 750 |
| 575 | 250 | 675 | | | | | | | | | | | 2,100 | 1,475 | 1,175 | 1,675 | 1,375 | 1,175 | 1,325 | 1,075 | 775 |
| 550 | 300 | 700 | | | | | | | | | | | 2,100 | 1,475 | 1,175 | 1,675 | 1,400 | 1,175 | 1,325 | 1,075 | 800 |
| 525 | 325 | 725 | | | | | | | | | | | 2,100 | 1,500 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,100 | 800 |
| 500 | 375 | 725 | | | | | | | | | | | 2,100 | 1,500 | 1,200 | 1,700 | 1,400 | 1,200 | 1,350 | 1,100 | 825 |
| 475 | 400 | 750 | | | | | | | | | | | 2,125 | 1,500 | 1,200 | 1,700 | 1,425 | 1,200 | 1,350 | 1,125 | 825 |
| 450 | 425 | 775 | | | | | | | | | | | 2,125 | 1,500 | 1,225 | 1,700 | 1,425 | 1,225 | 1,375 | 1,125 | 850 |
| 425 | 450 | 775 | | | | | | | | | | | 2,125 | 1,525 | 1,225 | 1,700 | 1,425 | 1,225 | 1,375 | 1,125 | 850 |
| 400 | 475 | 800 | | | | | | | | | | | 2,125 | 1,525 | 1,250 | 1,725 | 1,450 | 1,250 | 1,375 | 1,150 | 875 |
| 375 | 500 | 800 | | | | | | | | | | | 2,150 | 1,525 | 1,250 | 1,725 | 1,450 | 1,250 | 1,400 | 1,150 | 875 |
| 350 | 525 | 825 | | | | | | | | | | | 2,150 | 1,525 | 1,250 | 1,725 | 1,450 | 1,250 | 1,400 | 1,150 | 900 |
| 325 | 525 | 825 | | | | | | | | | | | 2,150 | 1,550 | 1,250 | 1,725 | 1,450 | 1,250 | 1,400 | 1,175 | 900 |
| 300 | 550 | 825 | | | | | | | | | | | 2,150 | 1,550 | 1,275 | 1,725 | 1,475 | 1,275 | 1,400 | 1,175 | 900 |
| 275 | 550 | 850 | | | | | | | | | | | 2,150 | 1,550 | 1,275 | 1,750 | 1,475 | 1,275 | 1,425 | 1,175 | 925 |
| 250 | 575 | 850 | | | | | | | | | | | 2,150 | 1,550 | 1,275 | 1,750 | 1,475 | 1,275 | 1,425 | 1,175 | 925 |
| 225 | 575 | 850 | | | | | | | | | | | 2,150 | 1,550 | 1,275 | 1,750 | 1,475 | 1,275 | 1,425 | 1,200 | 925 |
| 200 | 575 | 875 | | | | | | | | | | | 2,150 | 1,550 | 1,275 | 1,750 | 1,475 | 1,275 | 1,425 | 1,200 | 950 |
| 175 | 600 | 875 | | | | | | | | | | | 2,175 | 1,575 | 1,300 | 1,750 | 1,475 | 1,300 | 1,425 | 1,200 | 950 |
| 150 | 600 | 875 | | | | | | | | | | | 2,175 | 1,575 | 1,300 | 1,750 | 1,500 | 1,300 | 1,425 | 1,200 | 950 |
| 125 | 600 | 875 | | | | | | | | | | | 2,175 | 1,575 | 1,300 | 1,750 | 1,500 | 1,300 | 1,425 | 1,200 | 950 |
| 100 | 600 | 875 | | | | | | | | | | | 2,175 | 1,575 | 1,300 | 1,750 | 1,500 | 1,300 | 1,425 | 1,200 | 950 |
| 75 | 625 | 875 | | | | | | | | | | | 2,175 | 1,575 | 1,300 | 1,750 | 1,500 | 1,300 | 1,450 | 1,200 | 950 |
| 50 | 625 | 900 | | | | | | | | | | | 2,025 | 1,550 | 1,300 | 1,750 | 1,500 | 1,300 | 1,450 | 1,200 | 950 |
| 25 | 625 | 900 | | | | | | | | | | | 1,900 | 1,525 | 1,300 | 1,750 | 1,500 | 1,300 | 1,450 | 1,200 | 950 |
| 0 | 625 | 900 | | | | | | | | | | | 1,750 | 1,500 | 1,300 | 1,750 | 1,500 | 1,300 | 1,450 | 1,200 | 950 |

HOB₁₈ = 38 m

Low HOB_{min} = 67 m

High HOB_{min} = 152 m

HOB₉₉ = HOB₁₈ + 3.5 PE_h m

HOB₉₈ = HOB₁₈ + 3.0 PE_h m

HOB₉₀ = HOB₁₈ + 1.9 PE_h m

Figure 2.6b.

CASUALTY and DAMAGE Tables **Medium-Range Cannon**

CHARLIE/2 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-----|-----------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehicles | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 900 | | | | | | | 550 | | | 2,075 | | | 0-5 | | | | 0-500 | |
| 875 | | | | | | | 575 | | | 2,100 | | | 0-10 | | | | 0-600 | |
| 850 | | | | | | | 625 | | | 2,100 | | | 0-10 | | | | 0-650 | |
| 825 | | | | | | | 650 | | | 2,100 | | | 0-10 | | | | 0-700 | |
| 800 | | | | | | | 675 | | | 2,100 | | | 0-10 | | | | 0-700 | |
| 775 | | | | | | | 700 | | | 2,125 | | | 0-15 | | | | 0-750 | |
| 750 | | | | | | | 725 | | | 2,125 | | | 0-15 | | | | 0-750 | |
| 725 | | | | | | | 750 | | | 2,125 | | 0 | 0-20 | | | 0 | 0-800 | |
| 700 | | | | | | | 775 | | | 2,125 | | 0-5 | 0-20 | | | 0-50 | 0-800 | |
| 675 | | | | | | | 800 | | | 2,150 | | 0-5 | 0-25 | | | 0-200 | 0-850 | |
| 650 | | | | | | | 825 | | | 2,150 | | 0-5 | 0-35 | | | 0-300 | 0-850 | |
| 625 | | | | | | | 850 | | | 2,150 | | 0-5 | 0-40 | | | 0-350 | 0-850 | |
| 600 | | | | | | | 850 | | | 2,150 | | 0-5 | 5-50 | | | 0-400 | 50-900 | |
| 575 | | | | | | | 875 | | | 2,150 | | 0-5 | 5-60 | | | 0-400 | 200-900 | |
| 550 | | | | | | | 900 | | | 2,150 | | 0-10 | 5-75 | | | 0-450 | 250-900 | |
| 525 | | | | | | | 900 | | | 2,125 | 0 | 0-10 | 5-100 | | 0 | 0-450 | 300-950 | |
| 500 | | | | | | | 925 | | | 2,125 | 0-5 | 0-10 | 5-120 | | 0-50 | 0-500 | 350-950 | |
| 475 | | | | | | | 925 | 0 | | 2,125 | 0-5 | 0-15 | 10-180 | | 0-150 | 0-550 | 400-950 | |
| 450 | | | | | | | 950 | 150 | | 2,100 | 0-5 | 0-20 | 10-230 | | 0-250 | 0-550 | 400-1,000 | |
| 425 | | | | | | | 950 | 200 | | 2,100 | 0-5 | 0-25 | 15-300 | | 0-300 | 0-600 | 450-1,000 | |
| 400 | | | | | | | 975 | 250 | | 2,075 | 0-5 | 0-35 | 20-400 | | 0-300 | 0-600 | 450-1,000 | |
| 375 | | | | 0 | | | 975 | 300 | | 2,075 | 0-5 | 0-50 | 20-520 | | 0-350 | 0-600 | 500-1,000 | |
| 350 | | | | 25 | | | 1,000 | 325 | | 2,050 | 0-10 | 5-60 | 25-640 | | 0-400 | 50-650 | 500-1,000 | |
| 325 | | | | 75 | | | 1,000 | 350 | | 2,025 | 0-10 | 5-70 | 35-800 | | 0-400 | 150-650 | 500-1,000 | |
| 300 | 0 | | | 125 | | | 1,000 | 375 | | 2,025 | 0-10 | 5-80 | 40-940 | | 0-400 | 200-650 | 550-1,050 | |
| 275 | 25 | | | 175 | | 0 | 1,025 | 375 | 0 | 2,000 | 0-15 | 5-100 | 50-1,140 | | 0-450 | 250-650 | 550-1,050 | |
| 250 | 100 | | 0 | 200 | | 250 | 1,025 | 400 | 50 | 1,975 | 0-15 | 5-110 | 60-1,320 | | 0-450 | 250-700 | 550-1,050 | |
| 225 | 150 | 0 | 25 | 250 | | 300 | 1,025 | 425 | 125 | 1,950 | 0-15 | 10-130 | 70-1,560 | | 0-450 | 300-700 | 600-1,050 | |
| 200 | 250 | 25 | 75 | 250 | | 325 | 1,025 | 425 | 150 | 1,925 | 0-20 | 10-180 | 90-2,160 | | 0-500 | 300-700 | 600-1,050 | |
| 175 | 275 | 50 | 100 | 275 | | 325 | 1,025 | 450 | 175 | 1,900 | 0-25 | 10-220 | 110-2,700 | | 0-500 | 350-700 | 600-1,050 | |
| 150 | 300 | 100 | 125 | 300 | | 350 | 1,050 | 450 | 200 | 1,875 | 0-35 | 15-280 | 140-3,400 | | 0-500 | 350-700 | 600-1,050 | |
| 125 | 325 | 125 | 150 | 300 | 0 | 350 | 1,050 | 450 | 225 | 1,850 | 0-40 | 15-370 | 180-4,500 | | 0-500 | 350-700 | 600-1,050 | |
| 100 | 350 | 175 | 175 | 325 | 275 | 350 | 1,050 | 475 | 225 | 1,825 | 5-50 | 20-450 | 220-5,400 | | 50-500 | 350-700 | 600-1,050 | |
| 75 | 350 | 200 | 175 | 325 | 300 | 375 | 1,050 | 475 | 250 | 1,775 | 5-70 | 25-580 | 280-7,000 | 0 | 100-500 | 350-700 | 600-1,050 | 0 |
| 50 | 350 | 200 | 200 | 325 | 300 | 375 | 925 | 425 | 225 | 1,750 | 5-80 | 30-700 | 340-8,400 | 0-5 | 100-500 | 350-700 | 600-1,050 | 0-80 |
| 25 | 300 | 200 | 175 | 325 | 275 | 350 | 775 | 350 | 200 | 1,725 | FALLOUT GOVERNS | | | | | | | |
| 0 | 225 | 150 | 125 | 275 | 250 | 300 | 625 | 300 | 150 | 1,675 | | | | | | | | |

MRC 1

Figure 2.6b continued.

CONTINGENT EFFECTS Tables
Medium-Range Cannon

INDUCED RADIATION IN SOILS (See note 1.)
Fallout activity is not significant.

| Yield
KT | HOB | Estimated radii in meters of 2 rad/hr contour of induced radiation
1 hour after burst. (See note 2.) | | | | Estimated induced radiation intensity, 1 hour after
burst, at GZ. In rad/hr. (See note 2.) | | | |
|-------------|------|---|---------------------------------|--------------------------------------|---|---|--------------|---------------|--------------|
| | | Soil type I
(Liberia, Africa) | Soil type II
(Nevada desert) | Soil type III
(lava clay, Hawaii) | Soil type IV
(beach sand,
Pensacola, Fla) | Soil type I | Soil type II | Soil type III | Soil type IV |
| BRAVO/1 | Low | 50-400 | 300-600 | 450-950 | 0 | 5-40 | 15-350 | 170-4,200 | 0 |
| | High | 0-400 | 300-600 | 450-950 | 0 | 0-25 | 10-225 | 110-2,700 | 0 |
| CHARLIE/2 | Low | 100-500 | 350-700 | 600-1,050 | 0-50 | 5-80 | 30-700 | 340-8,400 | 0-5 |
| | High | 0-500 | 350-700 | 600-1,050 | 0 | 0-40 | 15-370 | 180-4,500 | 0 |

NOTES: 1. For description of chemical composition and effects of variations in chemical composition in soil types, see FM101-31-1, app III, annex F.
2. For range dependent delivery systems, intensities and 2 rad/hr contours are given for minimum ranges.

Figure 2.7a.

TREE BLOWDOWN (See note.)
All distances in meters

| Yield
KT | OBSTACLES TO MOVEMENT | | | | | | | CASUALTIES TO
EXPOSED PERSONNEL | | |
|-------------|--------------------------------------|------------|-------------|------------|-----------------------------|---------------------|----------------------|------------------------------------|---------------------|----------------------|
| | Foot and wheeled
vehicle movement | | | | Tracked vehicle
movement | | | | | |
| | Type
I | Type
II | Type
III | Type
IV | Type
I | Types
II, IVa(d) | Types
III, IVa(f) | Type
I | Types
II, IVa(d) | Types
III, IVa(f) |
| BRAVO/1 | 300 | 400 | 400 | 700 | 300 | 400 | 400 | 200 | 300 | 300 |
| CHARLIE/2 | 350 | 500 | 550 | 900 | 350 | 500 | 550 | 250 | 400 | 400 |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 2.7b.

LIGHT AIRCRAFT IN FLIGHT (See note 1.)

| Yield
KT | AIRCRAFT SAFETY RADIi-meters
(See note 2.) | | |
|-------------|---|-----------------------|---------------------------|
| | Light fixed
wing | Recon and
obsn hel | Transport and
util hel |
| BRAVO/1 | 5,000 | 5,000 | 5,000 |
| CHARLIE/2 | 6,000 | 6,000 | 5,000 |

NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.
2. A buffer distance has been added to these radii of safety.

Figure 2.7c.

CONTINGENT EFFECTS Tables (continued)
Medium-Range Cannon

| Yield
KT | HOB | Expected radii for ignition of wildland fuels during fire season—meters | | | | | | | |
|-------------|-----|---|----------|-----------|----------|---|----------|-----------|----------|
| | | Dry climate (25 percent relative humidity) | | | | Damp climate (75 percent relative humidity) | | | |
| | | Class I | Class II | Class III | Class IV | Class I | Class II | Class III | Class IV |
| BRAVO/1 | Air | 1,100 | 1,000 | 900 | 700 | 1,000 | 1,000 | 800 | 600 |
| CHARLIE/2 | Air | 1,400 | 1,300 | 1,000 | 800 | 1,300 | 1,300 | 1,100 | 800 |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 2.7d.

MRC 1

TACTICAL SYSTEM ACCURACY DATA
Medium-Range Cannon
All distances in meters

| Range | Equivalent
CEP ¹ | Probable errors | | | Offset
distance
(d _o) | Range | Equivalent
CEP ¹ | Probable errors | | | Offset
distance
(d _o) |
|--------|--------------------------------|-----------------|-----------------|-----------------|---|--------|--------------------------------|-----------------|-----------------|-----------------|---|
| | | PE _R | PE _D | PE _H | | | | PE _R | PE _D | PE _H | |
| 2,000 | 14 | 10 | 5 | 5 | 30 | 18,000 | 125 | 90 | 45 | 45 | 245 |
| 3,000 | 21 | 15 | 8 | 8 | 45 | 19,000 | 132 | 95 | 48 | 48 | 260 |
| 4,000 | 28 | 20 | 10 | 10 | 55 | 20,000 | 138 | 100 | 50 | 50 | 270 |
| 5,000 | 35 | 25 | 13 | 13 | 70 | | | | | | |
| 6,000 | 42 | 30 | 15 | 15 | 85 | | | | | | |
| 7,000 | 49 | 35 | 18 | 18 | 95 | | | | | | |
| 8,000 | 56 | 40 | 20 | 20 | 110 | | | | | | |
| 9,000 | 63 | 45 | 23 | 23 | 125 | | | | | | |
| 10,000 | 69 | 50 | 25 | 25 | 135 | | | | | | |
| 11,000 | 76 | 55 | 28 | 28 | 150 | | | | | | |
| 12,000 | 83 | 60 | 30 | 30 | 165 | | | | | | |
| 13,000 | 90 | 65 | 33 | 33 | 180 | | | | | | |
| 14,000 | 97 | 70 | 35 | 35 | 190 | | | | | | |
| 15,000 | 104 | 75 | 38 | 38 | 205 | | | | | | |
| 16,000 | 111 | 80 | 40 | 40 | 220 | | | | | | |
| 17,000 | 118 | 85 | 43 | 43 | 230 | | | | | | |

¹Equivalent CEP=1.2345 (PE_R²+PE_D²)^{1/2}.

Figure 2.8.

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CHAPTER 3

LONG-RANGE CANNON

3.1 GENERAL

- a. *Orientation.* This chapter contains employment data for the long-range cannon.
- b. *Weapon characteristics.*

(1) *Yield.* The long-range cannon can fire nuclear projectiles with yields of Charlie/2 KT, Delta/5 KT, Echo/10 KT, Foxtrot/20 KT and Golf/50 KT.

(2) *Fuzing.* The nuclear projectiles for the long-range cannon have an airburst fuzing capability. The projectiles are fuzed by time fuzes which are set for the desired time of flight by the delivery unit. These projectiles do not have a contact surface fuzing capability. If a projectile impacts, it can be expected to break up and become a dud.

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

- c. *Employment considerations.*

(1) *Range.* The minimum and maximum ranges of the long-range cannon nuclear projectiles are 3,000 meters and 30,000 meters.

(2) *Tactical system accuracy.* The horizontal and vertical dispersion errors for the long-range cannon are dependent on range. Tactical system accuracy data are contained in figure 3.8.

(3) *Unit carrying capacity.* Not a limitation in this case.

(4) *Response time.* The times shown below can be used as a basis for general tactical planning. They are applicable to a reasonably well-trained unit operating in daylight under favorable weather conditions. Blackout operations, unfavorable weather, enemy interference, equipment breakdown, or faulty test indications will extend the times listed. *For detailed tactical planning, the response times should be the actual times obtained from the artillery unit concerned.*

| Situation | Time (minutes) |
|-----------------|----------------|
| I ¹ | 30 |
| II ² | 5 |

¹Situation I (high readiness)—the complete round and delivery system are in a firing position and survey is completed. Preliminary firing data for a specific target are *not* available. (May be used to engage target of opportunity.)

²Situation II (maximum readiness)—the round is positioned, fuzed, and ready to fire. Firing data for a specific target have been computed and applied to the weapon system. The firing unit is in a "do not load" status awaiting the order to fire. (Typical of readiness to engage on-call target.)

(5) *Special considerations.* The target analyst needs no special information from the unit fire direction center for target analysis. The fire mission to the unit includes the desired height of burst in meters.

LRC 1

EXPOSED Personnel Targets
Long-Range Cannon

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|------|------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 700 | 800 | 900 | 1,000 | 1,100 | 1,200 | 1,300 | 1,400 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt | Delayed | | |
| 3,000 | 2,300 | .7/8 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .8/9 | .7/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 625 | 875 | 45 | 67 |
| 4,000 | 2,300 | .7/8 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .8/9 | .7/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 625 | 875 | 55 | 73 |
| 5,000 | 2,300 | .6/8 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .8/9 | .7/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 600 | 875 | 70 | 82 |
| 6,000 | 2,300 | .6/8 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .8/9 | .7/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 600 | 875 | 85 | 91 |
| 7,000 | 2,300 | .6/8 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .8/9 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 600 | 875 | 95 | 100 |
| 8,000 | 2,400 | .6/7 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .8/9 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 600 | 875 | 110 | 108 |
| 9,000 | 2,400 | .6/7 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .8/9 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 600 | 875 | 125 | 117 |
| 10,000 | 2,400 | .6/7 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .8/9 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 600 | 875 | 135 | 126 |
| 11,000 | 2,400 | .6/7 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .8/9 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 600 | 875 | 150 | 135 |
| 12,000 | 2,400 | .6/7 | .5/6 | .4/4 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .8/9 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 575 | 875 | 165 | 143 |
| 13,000 | 2,400 | .6/7 | .5/6 | .4/4 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .8/9 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 575 | 875 | 180 | 152 |
| 14,000 | 2,500 | .6/7 | .4/5 | .3/4 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 575 | 850 | 190 | 161 |
| 15,000 | 2,500 | .6/7 | .4/5 | .3/4 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 575 | 850 | 205 | 170 |
| 16,000 | 2,500 | .5/7 | .4/5 | .3/4 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 575 | 850 | 220 | 178 |
| 17,000 | 2,500 | .5/7 | .4/5 | .3/4 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 550 | 850 | 230 | 187 |
| 18,000 | 2,500 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .1/2 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 550 | 850 | 245 | 196 |
| 19,000 | 2,500 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .2/2 | .1/2 | .1/2 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 550 | 850 | 260 | 205 |
| 20,000 | 2,600 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .1/2 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 550 | 825 | 270 | 213 |
| 21,000 | 2,600 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .1/2 | .7/8 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 525 | 825 | 285 | 222 |
| 22,000 | 2,600 | .5/6 | .4/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .1/2 | .7/8 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | 525 | 825 | 300 | 231 |
| 23,000 | 2,600 | .4/6 | .4/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .1/2 | .7/8 | .6/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | .1/2 | 525 | 825 | 315 | 240 |
| 24,000 | 2,600 | .4/6 | .3/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .1/2 | .7/8 | .5/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | .1/2 | 500 | 825 | 325 | 248 |
| 25,000 | 2,700 | .4/6 | .3/5 | .3/4 | .2/3 | .1/3 | .1/2 | .1/2 | .1/2 | .7/8 | .5/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | .1/2 | 500 | 800 | 340 | 257 |
| 26,000 | 2,700 | .4/6 | .3/5 | .2/4 | .2/3 | .1/3 | .1/2 | .1/2 | .1/1 | .7/8 | .5/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | .1/2 | 475 | 800 | 355 | 266 |
| 27,000 | 2,700 | .4/5 | .3/4 | .2/4 | .2/3 | .1/3 | .1/2 | .1/2 | .1/1 | .7/8 | .5/6 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | .1/2 | 475 | 800 | 365 | 275 |
| 28,000 | 2,700 | .4/5 | .3/4 | .2/4 | .2/3 | .1/2 | .1/2 | .1/2 | .1/1 | .7/8 | .5/6 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | .1/2 | 450 | 775 | 380 | 283 |
| 29,000 | 2,700 | .3/5 | .3/4 | .2/4 | .2/3 | .1/2 | .1/2 | .1/2 | .1/1 | .7/8 | .5/6 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | .1/1 | 450 | 775 | 395 | 292 |
| 30,000 | 2,700 | .3/5 | .3/4 | .2/3 | .1/3 | .1/2 | .1/2 | .1/2 | .0/1 | .6/8 | .5/6 | .4/5 | .2/4 | .2/3 | .1/2 | .1/2 | .1/1 | 425 | 775 | 405 | 301 |

Figure 3.1a(1).

EXPOSED Personnel Targets **Long-Range Cannon**

CHARLIE/2 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 1,200 | 1,300 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt | Delayed | | |
| 3,000 | 2,300 | .8/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600 | 875 | 45 | 160 |
| 4,000 | 2,300 | .8/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600 | 875 | 55 | 168 |
| 5,000 | 2,300 | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575 | 875 | 70 | 177 |
| 6,000 | 2,300 | .7/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575 | 875 | 85 | 186 |
| 7,000 | 2,300 | .7/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575 | 850 | 95 | 195 |
| 8,000 | 2,400 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575 | 850 | 110 | 203 |
| 9,000 | 2,400 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575 | 850 | 125 | 212 |
| 10,000 | 2,400 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550 | 850 | 135 | 221 |
| 11,000 | 2,400 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550 | 850 | 150 | 230 |
| 12,000 | 2,400 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550 | 850 | 165 | 238 |
| 13,000 | 2,400 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550 | 825 | 180 | 247 |
| 14,000 | 2,500 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525 | 825 | 190 | 256 |
| 15,000 | 2,500 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525 | 825 | 205 | 265 |
| 16,000 | 2,500 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 525 | 825 | 220 | 273 |
| 17,000 | 2,500 | .6/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 500 | 825 | 230 | 282 |
| 18,000 | 2,500 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 500 | 800 | 245 | 291 |
| 19,000 | 2,500 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 475 | 800 | 260 | 300 |
| 20,000 | 2,600 | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 475 | 800 | 270 | 308 |
| 21,000 | 2,600 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 450 | 775 | 285 | 317 |
| 22,000 | 2,600 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 450 | 775 | 300 | 326 |
| 23,000 | 2,600 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 425 | 775 | 315 | 335 |
| 24,000 | 2,600 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 425 | 775 | 325 | 343 |
| 25,000 | 2,600 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 400 | 750 | 340 | 352 |
| 26,000 | 2,700 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 400 | 750 | 355 | 361 |
| 27,000 | 2,700 | .3/.6 | .3/.4 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 375 | 750 | 365 | 370 |
| 28,000 | 2,700 | .3/.5 | .2/.4 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .0/.1 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 350 | 725 | 380 | 378 |
| 29,000 | 2,700 | .3/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .0/.1 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 325 | 725 | 395 | 387 |
| 30,000 | 2,700 | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .7/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 300 | 700 | 405 | 396 |

Figure 3.1a(2).

EXPOSED Personnel Targets **Long-Range Cannon**

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D .
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|--|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | | Prompt | Delayed | | |
| 3,000 | 3,200 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 800 | 1,050 | 45 | 91 |
| 4,000 | 3,300 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 800 | 1,050 | 55 | 91 |
| 5,000 | 3,300 | .8/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,050 | 70 | 96 |
| 6,000 | 3,400 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,025 | 85 | 105 |
| 7,000 | 3,400 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,025 | 95 | 114 |
| 8,000 | 3,400 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,025 | 110 | 122 |
| 9,000 | 3,400 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,025 | 125 | 131 |
| 10,000 | 3,400 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,025 | 135 | 140 |
| 11,000 | 3,400 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,025 | 150 | 149 |
| 12,000 | 3,500 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,025 | 165 | 157 |
| 13,000 | 3,500 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,025 | 180 | 166 |
| 14,000 | 3,500 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 190 | 175 |
| 15,000 | 3,500 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 205 | 184 |
| 16,000 | 3,500 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 220 | 192 |
| 17,000 | 3,500 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 230 | 201 |
| 18,000 | 3,600 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 245 | 210 |
| 19,000 | 3,600 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 1,000 | 260 | 219 |
| 20,000 | 3,600 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 1,000 | 270 | 227 |
| 21,000 | 3,600 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 1,000 | 285 | 236 |
| 22,000 | 3,600 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 975 | 300 | 245 |
| 23,000 | 3,600 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 975 | 315 | 254 |
| 24,000 | 3,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 975 | 325 | 262 |
| 25,000 | 3,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 975 | 340 | 271 |
| 26,000 | 3,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 975 | 355 | 280 |
| 27,000 | 3,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 950 | 365 | 289 |
| 28,000 | 3,700 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 950 | 380 | 297 |
| 29,000 | 3,800 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 650 | 950 | 395 | 306 |
| 30,000 | 3,800 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 650 | 950 | 405 | 315 |

Figure 3.1b(1).

EXPOSED Personnel Targets **Long-Range Cannon**

DELTA/5 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|--|--|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | | Prompt | Delayed | | |
| 3,000 | 3,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 775 | 1,025 | 45 | 207 |
| 4,000 | 3,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,025 | 55 | 215 |
| 5,000 | 3,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,025 | 70 | 224 |
| 6,000 | 3,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 85 | 233 |
| 7,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 95 | 242 |
| 8,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 110 | 250 |
| 9,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 1,000 | 125 | 259 |
| 10,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 1,000 | 135 | 268 |
| 11,000 | 3,400 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 1,000 | 150 | 277 |
| 12,000 | 3,500 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 975 | 165 | 285 |
| 13,000 | 3,500 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 975 | 180 | 294 |
| 14,000 | 3,500 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 975 | 190 | 303 |
| 15,000 | 3,500 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 975 | 205 | 312 |
| 16,000 | 3,500 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 975 | 220 | 320 |
| 17,000 | 3,500 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 950 | 230 | 329 |
| 18,000 | 3,600 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 950 | 245 | 338 |
| 19,000 | 3,600 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .5/.7 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | 650 | 950 | 260 | 347 |
| 20,000 | 3,600 | .8/.9 | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | 650 | 950 | 270 | 355 |
| 21,000 | 3,600 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | 650 | 950 | 285 | 364 |
| 22,000 | 3,600 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | 625 | 925 | 300 | 373 |
| 23,000 | 3,600 | .7/.8 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | 625 | 925 | 315 | 382 |
| 24,000 | 3,700 | .7/.8 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | 625 | 925 | 325 | 390 |
| 25,000 | 3,700 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 | | | 600 | 925 | 340 | 399 |
| 26,000 | 3,700 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 | | | 600 | 900 | 355 | 408 |
| 27,000 | 3,700 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 | | | 575 | 900 | 365 | 417 |
| 28,000 | 3,700 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .5/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 575 | 875 | 380 | 425 |
| 29,000 | 3,700 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .5/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 550 | 875 | 395 | 434 |
| 30,000 | 3,800 | .6/.8 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .7/.9 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 550 | 875 | 405 | 443 |

LRC 1

Figure 3.1b(2).

EXPOSED Personnel Targets Long-Range Cannon

**LOW Airburst
Precludes fallout**

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|---|--------|--|-----------------------------------|---------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | Prompt | | | Delayed |
| 3,000 | 3,800 | .7/7 | .5/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .1/1 | .9/9 | .8/8 | .5/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,175 | 45 | 115 |
| 4,000 | 3,900 | .7/7 | .5/5 | .3/4 | .2/3 | .2/3 | .1/2 | .1/2 | .1/1 | .9/9 | .8/8 | .5/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,175 | 55 | 115 |
| 5,000 | 4,100 | .7/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .5/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,175 | 70 | 115 |
| 6,000 | 4,200 | .7/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .5/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 85 | 118 |
| 7,000 | 4,200 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .5/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 95 | 127 |
| 8,000 | 4,200 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .5/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 110 | 135 |
| 9,000 | 4,200 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .5/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 125 | 144 |
| 10,000 | 4,200 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .5/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 135 | 153 |
| 11,000 | 4,300 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 150 | 162 |
| 12,000 | 4,300 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 165 | 170 |
| 13,000 | 4,300 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 180 | 179 |
| 14,000 | 4,300 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 190 | 188 |
| 15,000 | 4,300 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,150 | 205 | 197 |
| 16,000 | 4,400 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,125 | 220 | 205 |
| 17,000 | 4,400 | .6/7 | .5/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,125 | 230 | 214 |
| 18,000 | 4,400 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,125 | 245 | 223 |
| 19,000 | 4,400 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,125 | 260 | 232 |
| 20,000 | 4,400 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .3/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,125 | 270 | 240 |
| 21,000 | 4,400 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,125 | 285 | 249 |
| 22,000 | 4,500 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,125 | 300 | 258 |
| 23,000 | 4,500 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,100 | 315 | 267 |
| 24,000 | 4,500 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 875 | 1,100 | 325 | 275 |
| 25,000 | 4,500 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/2 | .1/1 | | 875 | 1,100 | 340 | 284 |
| 26,000 | 4,500 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/2 | .1/1 | | 850 | 1,100 | 355 | 293 |
| 27,000 | 4,500 | .6/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/2 | .1/1 | | 850 | 1,100 | 365 | 302 |
| 28,000 | 4,600 | .5/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/2 | .1/1 | | 850 | 1,075 | 380 | 310 |
| 29,000 | 4,600 | .5/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/2 | .1/1 | | 850 | 1,075 | 395 | 319 |
| 30,000 | 4,600 | .5/7 | .4/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .1/1 | .9/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/2 | .1/1 | | 850 | 1,075 | 405 | 328 |

Figure 3.1c(1).

**EXPOSED Personnel Targets
Long-Range Cannon**

ECHO/10 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|---|-------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | | | |
| 3,000 | 4,100 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,150 | 45 | 259 |
| 4,000 | 4,100 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 55 | 262 |
| 5,000 | 4,200 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 70 | 271 |
| 6,000 | 4,200 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 85 | 280 |
| 7,000 | 4,200 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 95 | 289 |
| 8,000 | 4,200 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 110 | 297 |
| 9,000 | 4,200 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 125 | 306 |
| 10,000 | 4,200 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 135 | 315 |
| 11,000 | 4,300 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,100 | 150 | 324 |
| 12,000 | 4,300 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,100 | 165 | 332 |
| 13,000 | 4,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 875 | 1,100 | 180 | 341 |
| 14,000 | 4,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,100 | 190 | 350 |
| 15,000 | 4,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,100 | 205 | 359 |
| 16,000 | 4,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,075 | 220 | 367 |
| 17,000 | 4,400 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,075 | 230 | 376 |
| 18,000 | 4,400 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,075 | 245 | 385 |
| 19,000 | 4,400 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,075 | 260 | 394 |
| 20,000 | 4,400 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 825 | 1,050 | 270 | 402 |
| 21,000 | 4,400 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 775 | 1,050 | 285 | 411 |
| 22,000 | 4,400 | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 725 | 1,050 | 300 | 420 |
| 23,000 | 4,500 | .7/.8 | .5/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 725 | 1,050 | 315 | 429 |
| 24,000 | 4,500 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 700 | 1,025 | 325 | 437 |
| 25,000 | 4,500 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 700 | 1,025 | 340 | 446 |
| 26,000 | 4,500 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 675 | 1,025 | 355 | 455 |
| 27,000 | 4,500 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 675 | 1,000 | 365 | 464 |
| 28,000 | 4,500 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 650 | 1,000 | 380 | 472 |
| 29,000 | 4,600 | .5/.7 | .4/.6 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 650 | 1,000 | 395 | 481 |
| 30,000 | 4,600 | .5/.7 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 625 | 975 | 405 | 490 |

LRC 1

Figure 3.1c(2).

EXPOSED Personnel Targets
Long-Range Cannon

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 2,600 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | Prompt | Delayed | | |
| 3,000 | 5,100 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,075 | 1,250 | 45 | 144 |
| 4,000 | 5,300 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,075 | 1,250 | 55 | 144 |
| 5,000 | 5,500 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,075 | 1,250 | 70 | 144 |
| 6,000 | 5,700 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,250 | 85 | 144 |
| 7,000 | 5,900 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,250 | 95 | 144 |
| 8,000 | 6,000 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,250 | 110 | 152 |
| 9,000 | 6,100 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,250 | 125 | 161 |
| 10,000 | 6,100 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,250 | 135 | 170 |
| 11,000 | 6,100 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,250 | 150 | 179 |
| 12,000 | 6,100 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,225 | 165 | 187 |
| 13,000 | 6,100 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,225 | 180 | 196 |
| 14,000 | 6,100 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 190 | 205 |
| 15,000 | 6,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 205 | 214 |
| 16,000 | 6,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 220 | 222 |
| 17,000 | 6,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 230 | 231 |
| 18,000 | 6,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 245 | 240 |
| 19,000 | 6,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 260 | 249 |
| 20,000 | 6,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 270 | 257 |
| 21,000 | 6,300 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 285 | 266 |
| 22,000 | 6,300 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 300 | 275 |
| 23,000 | 6,300 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 315 | 284 |
| 24,000 | 6,300 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 325 | 292 |
| 25,000 | 6,300 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 340 | 301 |
| 26,000 | 6,400 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,175 | 355 | 310 |
| 27,000 | 6,400 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 365 | 319 |
| 28,000 | 6,400 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 380 | 327 |
| 29,000 | 6,400 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 390 | 336 |
| 30,000 | 6,400 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,150 | 405 | 345 |

Figure 3.1d(1).

**EXPOSED Personnel Targets
Long-Range Cannon**

FOXTROT/20 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | Prompt | Delayed | | |
| 3,000 | 5,900 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,150 | 1,225 | 45 | 326 |
| 4,000 | 6,000 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,150 | 1,225 | 55 | 326 |
| 5,000 | 6,000 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.1 | | 1,150 | 1,200 | 70 | 330 |
| 6,000 | 6,000 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,200 | 85 | 339 |
| 7,000 | 6,000 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,200 | 95 | 348 |
| 8,000 | 6,000 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,200 | 110 | 356 |
| 9,000 | 6,000 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,200 | 125 | 365 |
| 10,000 | 6,100 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,200 | 135 | 374 |
| 11,000 | 6,100 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 150 | 383 |
| 12,000 | 6,100 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 165 | 391 |
| 13,000 | 6,100 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 180 | 400 |
| 14,000 | 6,100 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 190 | 409 |
| 15,000 | 6,200 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,150 | 205 | 418 |
| 16,000 | 6,200 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,150 | 220 | 426 |
| 17,000 | 6,200 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 1,150 | 1,150 | 230 | 435 |
| 18,000 | 6,200 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 1,125 | 1,150 | 245 | 444 |
| 19,000 | 6,200 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 1,125 | 1,125 | 260 | 453 |
| 20,000 | 6,200 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 1,125 | 1,125 | 270 | 461 |
| 21,000 | 6,300 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 1,125 | 1,125 | 285 | 470 |
| 22,000 | 6,300 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 1,125 | 1,125 | 300 | 479 |
| 23,000 | 6,300 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 1,125 | 1,125 | 315 | 488 |
| 24,000 | 6,300 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 1,125 | 1,125 | 325 | 496 |
| 25,000 | 6,300 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 1,100 | 1,100 | 340 | 505 |
| 26,000 | 6,300 | .8/.9 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 1,050 | 1,075 | 355 | 514 |
| 27,000 | 6,400 | .8/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 1,000 | 1,075 | 365 | 523 |
| 28,000 | 6,400 | .7/.8 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 800 | 1,075 | 380 | 531 |
| 29,000 | 6,400 | .6/.8 | .4/.7 | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 725 | 1,050 | 390 | 540 |
| 30,000 | 6,400 | .5/.8 | .3/.7 | .2/.6 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 725 | 1,050 | 405 | 549 |

LRC 1

Figure 3.1d(2).

EXPOSED Personnel Targets
Long-Range Cannon

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | Prompt | Delayed | | |
| 3,000 | 7,200 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,550 | 1,550 | 45 | 196 |
| 4,000 | 7,400 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,550 | 1,550 | 55 | 196 |
| 5,000 | 7,600 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,550 | 1,550 | 70 | 196 |
| 6,000 | 7,800 | .8/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,550 | 1,550 | 85 | 196 |
| 7,000 | 8,000 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,575 | 1,575 | 95 | 196 |
| 8,000 | 8,200 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,575 | 1,575 | 110 | 196 |
| 9,000 | 8,500 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,575 | 1,575 | 125 | 196 |
| 10,000 | 8,700 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,575 | 1,575 | 135 | 199 |
| 11,000 | 8,900 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,575 | 1,575 | 150 | 208 |
| 12,000 | 8,900 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,575 | 1,575 | 165 | 216 |
| 13,000 | 9,000 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,575 | 1,575 | 180 | 225 |
| 14,000 | 9,000 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,600 | 1,600 | 190 | 234 |
| 15,000 | 9,000 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,600 | 1,600 | 205 | 243 |
| 16,000 | 9,000 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,600 | 1,600 | 220 | 251 |
| 17,000 | 9,000 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,600 | 1,600 | 230 | 260 |
| 18,000 | 9,000 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,600 | 1,600 | 245 | 269 |
| 19,000 | 9,100 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,600 | 1,600 | 260 | 278 |
| 20,000 | 9,100 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,600 | 1,600 | 270 | 286 |
| 21,000 | 9,100 | .8/.9 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,600 | 1,600 | 285 | 295 |
| 22,000 | 9,100 | .8/.9 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.6 | .3/.4 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 300 | 304 |
| 23,000 | 9,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 315 | 313 |
| 24,000 | 9,200 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 325 | 321 |
| 25,000 | 9,200 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 340 | 330 |
| 26,000 | 9,200 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 355 | 339 |
| 27,000 | 9,200 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 365 | 348 |
| 28,000 | 9,200 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 380 | 356 |
| 29,000 | 9,200 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 395 | 365 |
| 30,000 | 9,300 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 405 | 374 |

Figure 3.1e(1).

EXPOSED Personnel Targets Long-Range Cannon

GOLF/50 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_0
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | Prompt | Delayed | | |
| 3,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 45 | 442 |
| 4,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 55 | 442 |
| 5,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 70 | 442 |
| 6,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 85 | 442 |
| 7,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 95 | 449 |
| 8,000 | 8,900 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 110 | 457 |
| 9,000 | 8,900 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 125 | 466 |
| 10,000 | 8,900 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 135 | 475 |
| 11,000 | 8,900 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 150 | 484 |
| 12,000 | 8,900 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 165 | 492 |
| 13,000 | 9,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 180 | 501 |
| 14,000 | 9,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 190 | 510 |
| 15,000 | 9,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 205 | 519 |
| 16,000 | 9,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 220 | 527 |
| 17,000 | 9,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 230 | 536 |
| 18,000 | 9,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 245 | 545 |
| 19,000 | 9,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 260 | 554 |
| 20,000 | 9,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 270 | 562 |
| 21,000 | 9,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 285 | 571 |
| 22,000 | 9,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 300 | 580 |
| 23,000 | 9,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 315 | 589 |
| 24,000 | 9,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 325 | 597 |
| 25,000 | 9,200 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 340 | 606 |
| 26,000 | 9,200 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,650 | 1,650 | 355 | 615 |
| 27,000 | 9,200 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 365 | 624 |
| 28,000 | 9,200 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 380 | 632 |
| 29,000 | 9,200 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 395 | 641 |
| 30,000 | 9,200 | .7/.8 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,625 | 1,625 | 405 | 650 |

LRC 1

Figure 3.1e(2).

¹Long-Range Cannon.

PROTECTED Personnel Targets
Long-Range Cannon

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt | Delayed | | |
| 3,000 | 2,300 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450 | 675 | 45 | 67 |
| 4,000 | 2,300 | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450 | 675 | 55 | 73 |
| 5,000 | 2,300 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450 | 675 | 70 | 82 |
| 6,000 | 2,300 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450 | 675 | 85 | 91 |
| 7,000 | 2,300 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450 | 675 | 95 | 100 |
| 8,000 | 2,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 450 | 675 | 110 | 108 |
| 9,000 | 2,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 675 | 125 | 117 |
| 10,000 | 2,400 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 675 | 135 | 126 |
| 11,000 | 2,400 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 650 | 150 | 135 |
| 12,000 | 2,400 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 650 | 165 | 143 |
| 13,000 | 2,400 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 650 | 180 | 152 |
| 14,000 | 2,500 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400 | 650 | 190 | 161 |
| 15,000 | 2,500 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400 | 650 | 205 | 170 |
| 16,000 | 2,500 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400 | 625 | 220 | 178 |
| 17,000 | 2,500 | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375 | 625 | 230 | 187 |
| 18,000 | 2,500 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375 | 625 | 245 | 196 |
| 19,000 | 2,500 | .6/.8 | .4/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350 | 625 | 260 | 205 |
| 20,000 | 2,600 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350 | 600 | 270 | 213 |
| 21,000 | 2,600 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | 600 | 285 | 222 |
| 22,000 | 2,600 | .5/.7 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | 600 | 300 | 231 |
| 23,000 | 2,600 | .4/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 600 | 315 | 240 |
| 24,000 | 2,600 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 575 | 325 | 248 |
| 25,000 | 2,700 | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 275 | 575 | 340 | 257 |
| 26,000 | 2,700 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 250 | 575 | 355 | 266 |
| 27,000 | 2,700 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 225 | 550 | 365 | 275 |
| 28,000 | 2,700 | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | .7/.9 | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 200 | 550 | 380 | 283 |
| 29,000 | 2,700 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 175 | 525 | 395 | 292 |
| 30,000 | 2,700 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | 150 | 525 | 405 | 301 |

Figure 3.2a(1).

PROTECTED Personnel Targets Long-Range Cannon

CHARLIE/2 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt | Delayed | | |
| 3,000 | 2,300 | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 675 | 45 | 160 |
| 4,000 | 2,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 650 | 55 | 168 |
| 5,000 | 2,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 650 | 70 | 177 |
| 6,000 | 2,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 650 | 85 | 186 |
| 7,000 | 2,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400 | 650 | 95 | 195 |
| 8,000 | 2,400 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400 | 650 | 110 | 203 |
| 9,000 | 2,400 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400 | 625 | 125 | 212 |
| 10,000 | 2,400 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375 | 625 | 135 | 221 |
| 11,000 | 2,400 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375 | 625 | 150 | 230 |
| 12,000 | 2,400 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350 | 625 | 165 | 238 |
| 13,000 | 2,400 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350 | 600 | 180 | 247 |
| 14,000 | 2,500 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350 | 600 | 190 | 256 |
| 15,000 | 2,500 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | 600 | 205 | 265 |
| 16,000 | 2,500 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 600 | 220 | 273 |
| 17,000 | 2,500 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 575 | 230 | 283 |
| 18,000 | 2,500 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .9/.9 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 275 | 575 | 245 | 291 |
| 19,000 | 2,500 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.1 | | | .9/.9 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 250 | 575 | 260 | 300 |
| 20,000 | 2,600 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .8/.9 | .6/.8 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | | 225 | 550 | 270 | 308 |
| 21,000 | 2,600 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .8/.9 | .6/.8 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | 200 | 550 | 285 | 317 |
| 22,000 | 2,600 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | .8/.9 | .6/.8 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | 175 | 525 | 300 | 326 |
| 23,000 | 2,600 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .8/.9 | .6/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | 150 | 525 | 315 | 335 |
| 24,000 | 2,600 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 100 | 500 | 325 | 343 |
| 25,000 | 2,600 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 0 | 500 | 340 | 352 |
| 26,000 | 2,700 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 0 | 475 | 355 | 361 |
| 27,000 | 2,700 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 0 | 475 | 365 | 370 |
| 28,000 | 2,700 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | .6/.8 | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 0 | 450 | 380 | 378 |
| 29,000 | 2,700 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .6/.8 | .4/.6 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 0 | 450 | 395 | 387 |
| 30,000 | 2,700 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 0 | 425 | 405 | 396 |

Figure 3.2a(2).

**PROTECTED Personnel Targets
Long-Range Cannon**

**LOW Airburst
Precludes fallout**

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt | Delayed | | |
| 3,000 | 3,200 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625 | 825 | 45 | 91 |
| 4,000 | 3,300 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600 | 825 | 55 | 91 |
| 5,000 | 3,300 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600 | 800 | 70 | 96 |
| 6,000 | 3,400 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600 | 800 | 85 | 105 |
| 7,000 | 3,400 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600 | 800 | 95 | 114 |
| 8,000 | 3,400 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600 | 800 | 110 | 122 |
| 9,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600 | 800 | 125 | 131 |
| 10,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600 | 800 | 135 | 140 |
| 11,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | 800 | 150 | 149 |
| 12,000 | 3,500 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | 800 | 165 | 157 |
| 13,000 | 3,500 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | 800 | 180 | 166 |
| 14,000 | 3,500 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | 775 | 190 | 175 |
| 15,000 | 3,500 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | 775 | 205 | 184 |
| 16,000 | 3,500 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 550 | 775 | 220 | 192 |
| 17,000 | 3,500 | .9/.9 | .6/.8 | .4/.5 | .2/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 550 | 775 | 230 | 201 |
| 18,000 | 3,600 | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 550 | 775 | 245 | 210 |
| 19,000 | 3,600 | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550 | 750 | 260 | 219 |
| 20,000 | 3,600 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 525 | 750 | 270 | 227 |
| 21,000 | 3,600 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 525 | 750 | 285 | 236 |
| 22,000 | 3,600 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 500 | 750 | 300 | 245 |
| 23,000 | 3,600 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 500 | 725 | 315 | 254 |
| 24,000 | 3,700 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 500 | 725 | 325 | 262 |
| 25,000 | 3,700 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 475 | 725 | 340 | 271 |
| 26,000 | 3,700 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 475 | 725 | 355 | 280 |
| 27,000 | 3,700 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 450 | 700 | 365 | 289 |
| 28,000 | 3,700 | .6/.8 | .4/.6 | .3/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 450 | 700 | 380 | 297 |
| 29,000 | 3,800 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 425 | 700 | 395 | 306 |
| 30,000 | 3,800 | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 425 | 675 | 405 | 315 |

Figure 3.2b(1).

**PROTECTED Personnel Targets
Long-Range Cannon**

DELTA/5 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_0
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt | Delayed | | |
| 3,000 | 3,300 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | 800 | 45 | 207 |
| 4,000 | 3,300 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | 775 | 55 | 215 |
| 5,000 | 3,300 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | 775 | 70 | 224 |
| 6,000 | 3,300 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550 | 775 | 85 | 233 |
| 7,000 | 3,400 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550 | 775 | 95 | 242 |
| 8,000 | 3,400 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550 | 775 | 110 | 250 |
| 9,000 | 3,400 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550 | 775 | 125 | 259 |
| 10,000 | 3,400 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 525 | 750 | 135 | 268 |
| 11,000 | 3,400 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 525 | 750 | 150 | 277 |
| 12,000 | 3,500 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 525 | 750 | 165 | 285 |
| 13,000 | 3,500 | .9/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 500 | 750 | 180 | 294 |
| 14,000 | 3,500 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 500 | 725 | 190 | 303 |
| 15,000 | 3,500 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 500 | 725 | 205 | 312 |
| 16,000 | 3,500 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 475 | 725 | 220 | 320 |
| 17,000 | 3,500 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 475 | 700 | 230 | 329 |
| 18,000 | 3,600 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 450 | 700 | 245 | 338 |
| 19,000 | 3,600 | .7/.9 | .5/.6 | .3/.4 | .1/.3 | .1/.2 | .0/.1 | | | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 450 | 700 | 260 | 347 |
| 20,000 | 3,600 | .7/.9 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 425 | 675 | 270 | 355 |
| 21,000 | 3,600 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400 | 675 | 285 | 364 |
| 22,000 | 3,600 | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400 | 675 | 300 | 373 |
| 23,000 | 3,600 | .6/.8 | .3/.6 | .2/.3 | .1/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375 | 650 | 315 | 382 |
| 24,000 | 3,700 | .5/.8 | .3/.5 | .2/.3 | .1/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350 | 650 | 325 | 390 |
| 25,000 | 3,700 | .5/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 350 | 625 | 340 | 399 |
| 26,000 | 3,700 | .4/.7 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 325 | 625 | 355 | 408 |
| 27,000 | 3,700 | .4/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.1 | | | | .7/.8 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 300 | 625 | 365 | 417 |
| 28,000 | 3,700 | .3/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.1 | | | | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 275 | 600 | 380 | 425 |
| 29,000 | 3,700 | .3/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | 250 | 600 | 395 | 434 |
| 30,000 | 3,800 | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 200 | 575 | 405 | 443 |

LRC 1

Figure 3.2b(2).

PROTECTED Personnel Targets Long-Range Cannon

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt | Delayed | | |
| 3,000 | 3,800 | .9/.9 | .9/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 700 | 925 | 45 | 115 |
| 4,000 | 3,900 | .9/.9 | .9/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 700 | 900 | 55 | 115 |
| 5,000 | 4,100 | .9/.9 | .9/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 700 | 900 | 70 | 115 |
| 6,000 | 4,200 | .9/.9 | .9/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 700 | 900 | 85 | 118 |
| 7,000 | 4,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 675 | 900 | 95 | 127 |
| 8,000 | 4,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 675 | 900 | 110 | 135 |
| 9,000 | 4,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 675 | 900 | 125 | 144 |
| 10,000 | 4,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 675 | 900 | 135 | 153 |
| 11,000 | 4,300 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 675 | 900 | 150 | 162 |
| 12,000 | 4,300 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 675 | 900 | 165 | 170 |
| 13,000 | 4,300 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 675 | 900 | 180 | 179 |
| 14,000 | 4,300 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 650 | 875 | 190 | 188 |
| 15,000 | 4,300 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 650 | 875 | 205 | 197 |
| 16,000 | 4,400 | .9/.9 | .8/.9 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 650 | 875 | 220 | 205 |
| 17,000 | 4,400 | .9/.9 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 650 | 875 | 230 | 214 |
| 18,000 | 4,400 | .9/.9 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625 | 875 | 245 | 223 |
| 19,000 | 4,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625 | 850 | 260 | 232 |
| 20,000 | 4,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 625 | 850 | 270 | 240 |
| 21,000 | 4,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 625 | 850 | 285 | 249 |
| 22,000 | 4,500 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600 | 850 | 300 | 258 |
| 23,000 | 4,500 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600 | 850 | 315 | 267 |
| 24,000 | 4,500 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600 | 825 | 325 | 275 |
| 25,000 | 4,500 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575 | 825 | 340 | 284 |
| 26,000 | 4,500 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 575 | 825 | 355 | 293 |
| 27,000 | 4,500 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 550 | 825 | 365 | 302 |
| 28,000 | 4,600 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 550 | 800 | 380 | 310 |
| 29,000 | 4,600 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 525 | 800 | 395 | 319 |
| 30,000 | 4,600 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 525 | 800 | 405 | 328 |

Figure 3.2c(1).

PROTECTED Personnel Targets Long-Range Cannon

ECHO/10 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt | Delayed | | |
| 3,000 | 4,100 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 650 | 875 | 45 | 259 |
| 4,000 | 4,100 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 650 | 875 | 55 | 262 |
| 5,000 | 4,200 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 650 | 875 | 70 | 271 |
| 6,000 | 4,200 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 625 | 875 | 85 | 280 |
| 7,000 | 4,200 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 625 | 850 | 95 | 289 |
| 8,000 | 4,200 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 625 | 850 | 110 | 297 |
| 9,000 | 4,200 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 625 | 850 | 125 | 306 |
| 10,000 | 4,200 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600 | 850 | 135 | 315 |
| 11,000 | 4,300 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600 | 850 | 150 | 324 |
| 12,000 | 4,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600 | 825 | 165 | 332 |
| 13,000 | 4,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575 | 825 | 180 | 341 |
| 14,000 | 4,300 | .9/.9 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 575 | 825 | 190 | 350 |
| 15,000 | 4,300 | .9/.9 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 550 | 825 | 205 | 359 |
| 16,000 | 4,300 | .9/.9 | .7/.8 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 550 | 800 | 220 | 367 |
| 17,000 | 4,400 | .9/.9 | .6/.8 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 525 | 800 | 230 | 376 |
| 18,000 | 4,400 | .8/.9 | .6/.8 | .4/.5 | .2/.4 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 525 | 800 | 245 | 385 |
| 19,000 | 4,400 | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 525 | 775 | 260 | 394 |
| 20,000 | 4,400 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 500 | 775 | 270 | 402 |
| 21,000 | 4,400 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 475 | 775 | 285 | 411 |
| 22,000 | 4,400 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 475 | 750 | 300 | 420 |
| 23,000 | 4,500 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 450 | 750 | 315 | 429 |
| 24,000 | 4,500 | .7/.9 | .5/.7 | .3/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 450 | 725 | 325 | 437 |
| 25,000 | 4,500 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 425 | 725 | 340 | 446 |
| 26,000 | 4,500 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 400 | 725 | 355 | 455 |
| 27,000 | 4,500 | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 375 | 700 | 365 | 464 |
| 28,000 | 4,500 | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 350 | 700 | 380 | 472 |
| 29,000 | 4,600 | .4/.7 | .3/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | | .7/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 350 | 675 | 395 | 481 |
| 30,000 | 4,600 | .4/.7 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 300 | 675 | 405 | 490 |

LRC 1

Figure 3.2c(2).

¹Long-Range Cannon.

PROTECTED Personnel Targets
Long-Range Cannon

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | Prompt | Delayed | | |
| 3,000 | 5,100 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 45 | 144 |
| 4,000 | 5,300 | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 55 | 144 |
| 5,000 | 5,500 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 775 | 1,025 | 70 | 144 |
| 6,000 | 5,700 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 775 | 1,000 | 85 | 144 |
| 7,000 | 5,900 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 775 | 1,000 | 95 | 144 |
| 8,000 | 6,000 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 775 | 1,000 | 110 | 152 |
| 9,000 | 6,100 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 775 | 1,000 | 125 | 161 |
| 10,000 | 6,100 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 775 | 1,000 | 135 | 170 |
| 11,000 | 6,100 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 775 | 1,000 | 150 | 179 |
| 12,000 | 6,100 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 750 | 1,000 | 165 | 187 |
| 13,000 | 6,100 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 750 | 1,000 | 180 | 196 |
| 14,000 | 6,100 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 750 | 1,000 | 190 | 205 |
| 15,000 | 6,200 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 750 | 975 | 205 | 214 |
| 16,000 | 6,200 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 750 | 975 | 220 | 222 |
| 17,000 | 6,200 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 750 | 975 | 230 | 231 |
| 18,000 | 6,200 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 725 | 975 | 245 | 240 |
| 19,000 | 6,200 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 725 | 975 | 260 | 249 |
| 20,000 | 6,200 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 725 | 975 | 270 | 257 |
| 21,000 | 6,300 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 700 | 950 | 285 | 266 |
| 22,000 | 6,300 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 700 | 950 | 300 | 275 |
| 23,000 | 6,300 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 700 | 950 | 315 | 284 |
| 24,000 | 6,300 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 700 | 950 | 325 | 292 |
| 25,000 | 6,300 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 675 | 925 | 340 | 301 |
| 26,000 | 6,400 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 675 | 925 | 355 | 310 |
| 27,000 | 6,400 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 675 | 925 | 365 | 319 |
| 28,000 | 6,400 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 650 | 925 | 380 | 327 |
| 29,000 | 6,400 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 | | 650 | 900 | 395 | 336 |
| 30,000 | 6,400 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 | | 625 | 900 | 405 | 345 |

Figure 3.2d(1).

**PROTECTED Personnel Targets
Long-Range Cannon**

FOXTROT/20 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | Prompt | Delayed | | |
| 3,000 | 5,900 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 725 | 975 | 45 | 326 |
| 4,000 | 6,000 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 725 | 975 | 55 | 326 |
| 5,000 | 6,000 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 725 | 950 | 70 | 330 |
| 6,000 | 6,000 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 700 | 950 | 85 | 339 |
| 7,000 | 6,000 | .9/.9 | .7/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 700 | 950 | 95 | 348 |
| 8,000 | 6,000 | .9/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 700 | 950 | 110 | 356 |
| 9,000 | 6,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 700 | 950 | 125 | 365 |
| 10,000 | 6,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 675 | 925 | 135 | 374 |
| 11,000 | 6,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 675 | 925 | 150 | 383 |
| 12,000 | 6,100 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 675 | 925 | 165 | 391 |
| 13,000 | 6,100 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 | | 650 | 900 | 180 | 400 |
| 14,000 | 6,100 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 | | 650 | 900 | 190 | 409 |
| 15,000 | 6,200 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 | | 625 | 900 | 205 | 418 |
| 16,000 | 6,200 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.3 | .1/.2 | .1/.2 | .0/.1 | | 625 | 900 | 220 | 426 |
| 17,000 | 6,200 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 625 | 875 | 230 | 435 |
| 18,000 | 6,200 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .8/.9 | .5/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 600 | 875 | 245 | 444 |
| 19,000 | 6,200 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .8/.9 | .5/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 600 | 875 | 260 | 453 |
| 20,000 | 6,200 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .8/.9 | .5/.6 | .2/.3 | .1/.2 | .1/.1 | | | 575 | 850 | 270 | 461 |
| 21,000 | 6,300 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .8/.9 | .4/.6 | .2/.3 | .1/.2 | .1/.1 | | | 575 | 850 | 285 | 470 |
| 22,000 | 6,300 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .8/.9 | .4/.6 | .2/.3 | .1/.2 | .1/.1 | | | 550 | 850 | 300 | 479 |
| 23,000 | 6,300 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .8/.9 | .4/.6 | .2/.3 | .1/.2 | .1/.1 | | | 525 | 825 | 315 | 488 |
| 24,000 | 6,300 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.9 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 525 | 825 | 325 | 496 |
| 25,000 | 6,300 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 500 | 825 | 340 | 505 |
| 26,000 | 6,300 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 475 | 800 | 355 | 514 |
| 27,000 | 6,400 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 475 | 800 | 365 | 523 |
| 28,000 | 6,400 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 450 | 775 | 380 | 531 |
| 29,000 | 6,400 | .4/.7 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .9/.9 | .7/.8 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | 425 | 775 | 390 | 540 |
| 30,000 | 6,400 | .4/.6 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .9/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | 400 | 750 | 405 | 549 |

LRC 1

Figure 3.2d(2).

**PROTECTED Personnel Targets
Long-Range Cannon**

**LOW Airburst
Precludes fallout**

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | Prompt | Delayed | | |
| 3,000 | 7,200 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 925 | 1,175 | 45 | 196 |
| 4,000 | 7,400 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 925 | 1,175 | 55 | 196 |
| 5,000 | 7,600 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 925 | 1,175 | 70 | 196 |
| 6,000 | 7,800 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 925 | 1,175 | 85 | 196 |
| 7,000 | 8,000 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 95 | 196 |
| 8,000 | 8,200 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 110 | 196 |
| 9,000 | 8,500 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,150 | 125 | 196 |
| 10,000 | 8,700 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,150 | 135 | 199 |
| 11,000 | 8,900 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,150 | 150 | 208 |
| 12,000 | 8,900 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,150 | 165 | 216 |
| 13,000 | 9,000 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,150 | 180 | 225 |
| 14,000 | 9,000 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,150 | 190 | 234 |
| 15,000 | 9,000 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,150 | 205 | 243 |
| 16,000 | 9,000 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,150 | 220 | 251 |
| 17,000 | 9,000 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 230 | 260 |
| 18,000 | 9,000 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875 | 1,125 | 245 | 269 |
| 19,000 | 9,100 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 850 | 1,125 | 260 | 278 |
| 20,000 | 9,100 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 850 | 1,125 | 270 | 286 |
| 21,000 | 9,100 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 850 | 1,125 | 285 | 295 |
| 22,000 | 9,100 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 850 | 1,100 | 300 | 304 |
| 23,000 | 9,100 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 825 | 1,100 | 315 | 313 |
| 24,000 | 9,200 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 825 | 1,100 | 325 | 321 |
| 25,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 825 | 1,100 | 340 | 330 |
| 26,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 800 | 1,100 | 355 | 339 |
| 27,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 800 | 1,075 | 365 | 348 |
| 28,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 800 | 1,075 | 380 | 356 |
| 29,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 800 | 1,075 | 395 | 365 |
| 30,000 | 9,300 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 800 | 1,075 | 405 | 374 |

Figure 3.2e(1).

**PROTECTED Personnel Targets
Long-Range Cannon**

GOLF/50 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--------|---|-------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | Prompt | Delayed | | | |
| 3,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 825 | 1,100 | 45 | 442 |
| 4,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 825 | 1,100 | 55 | 442 |
| 5,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 825 | 1,100 | 70 | 442 |
| 6,000 | 8,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 800 | 1,100 | 85 | 442 |
| 7,000 | 8,800 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 800 | 1,075 | 95 | 449 |
| 8,000 | 8,900 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 800 | 1,075 | 110 | 457 |
| 9,000 | 8,900 | .7/.8 | .5/.6 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 775 | 1,075 | 125 | 466 |
| 10,000 | 8,900 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 775 | 1,075 | 135 | 475 |
| 11,000 | 8,900 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 750 | 1,050 | 150 | 484 |
| 12,000 | 8,900 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 750 | 1,050 | 165 | 492 |
| 13,000 | 9,000 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 750 | 1,050 | 180 | 501 |
| 14,000 | 9,000 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 725 | 1,025 | 190 | 510 |
| 15,000 | 9,000 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 1,025 | 205 | 519 |
| 16,000 | 9,000 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 1,025 | 220 | 527 |
| 17,000 | 9,000 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 1,000 | 230 | 536 |
| 18,000 | 9,000 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 1,000 | 245 | 545 |
| 19,000 | 9,100 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 1,000 | 260 | 554 |
| 20,000 | 9,100 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 650 | 975 | 270 | 562 |
| 21,000 | 9,100 | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 650 | 975 | 285 | 571 |
| 22,000 | 9,100 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 625 | 975 | 300 | 580 |
| 23,000 | 9,100 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 625 | 950 | 315 | 589 |
| 24,000 | 9,100 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 625 | 950 | 325 | 597 |
| 25,000 | 9,200 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 600 | 950 | 340 | 606 |
| 26,000 | 9,200 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 600 | 925 | 355 | 615 |
| 27,000 | 9,200 | .4/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 575 | 925 | 365 | 624 |
| 28,000 | 9,200 | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | .8/.9 | .5/.6 | .3/.4 | .1/.3 | .1/.2 | .1/.1 | | | 575 | 900 | 380 | 632 |
| 29,000 | 9,200 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | .8/.9 | .5/.6 | .3/.4 | .1/.3 | .1/.2 | .0/.1 | | | 550 | 900 | 395 | 641 |
| 30,000 | 9,200 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | | .8/.9 | .5/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 525 | 875 | 405 | 650 |

Figure 3.2e(2).

MATERIEL Targets
Long-Range Cannon

CHARLIE/2 KT

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|--|--|-----------------------------------|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | | |
| | | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | | | |
| 3,000 | 2,300 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 350 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 200 | 45 | 67 |
| 4,000 | 2,300 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 350 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.1 | 200 | 55 | 73 |
| 5,000 | 2,300 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 325 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 175 | 70 | 82 |
| 6,000 | 2,300 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 325 | .7/.9 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 150 | 85 | 91 |
| 7,000 | 2,300 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 325 | .5/.8 | .3/.6 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 125 | 95 | 100 |
| 8,000 | 2,400 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 300 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 100 | 110 | 108 |
| 9,000 | 2,400 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | 300 | .2/.6 | .1/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 75 | 125 | 117 |
| 10,000 | 2,400 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 275 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 50 | 135 | 126 |
| 11,000 | 2,400 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 275 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 50 | 150 | 135 |
| 12,000 | 2,400 | .5/.6 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 250 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 25 | 165 | 143 |
| 13,000 | 2,400 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 225 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 180 | 152 |
| 14,000 | 2,500 | .3/.6 | .2/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 150 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 190 | 161 |
| 15,000 | 2,500 | .1/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 100 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | 205 | 170 |
| 16,000 | 2,500 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 75 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | 220 | 178 |
| 17,000 | 2,500 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 50 | .0/.2 | .0/.1 | | | | | | | 0 | 230 | 187 |
| 18,000 | 2,500 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 25 | .0/.1 | | | | | | | | 0 | 245 | 196 |
| 19,000 | 2,500 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.1 | | | | | | | | 0 | 260 | 205 |
| 20,000 | 2,600 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.1 | | | | | | | | 0 | 270 | 213 |
| 21,000 | 2,600 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 285 | 222 |
| 22,000 | 2,600 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 300 | 231 |
| 23,000 | 2,600 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 315 | 240 |
| 24,000 | 2,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 325 | 248 |
| 25,000 | 2,700 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | | 0 | 340 | 257 |
| 26,000 | 2,700 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | | 0 | 355 | 266 |
| 27,000 | 2,700 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | | 0 | 365 | 275 |
| 28,000 | 2,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 380 | 283 |
| 29,000 | 2,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 395 | 292 |
| 30,000 | 2,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 405 | 301 |

Figure 3.3a(1).

**MATERIEL Targets
Long-Range Cannon**

CHARLIE/2 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|--|--|-------------------------------|---|-----------------------------------|-----|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | Prob min
R_D
(meters) | | | |
| | | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | | 100 | 150 | 200 | 250 | | | | | | |
| 3,000 | 2,300 | .7/.8 | .6/.7 | .5/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 275 | .3/.6 | .1/.3 | .0/.2 | .0/.1 | | | | 50 | 45 | 160 |
| 4,000 | 2,300 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 275 | .1/.5 | .0/.2 | .0/.1 | | | | | 50 | 55 | 168 |
| 5,000 | 2,300 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 250 | .0/.3 | .0/.2 | .0/.1 | | | | | 25 | 70 | 177 |
| 6,000 | 2,300 | .6/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 225 | .0/.2 | .0/.1 | | | | | | 0 | 85 | 186 |
| 7,000 | 2,300 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 150 | .0/.2 | .0/.1 | | | | | | 0 | 95 | 195 |
| 8,000 | 2,400 | .1/.6 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 100 | .0/.1 | | | | | | | 0 | 110 | 203 |
| 9,000 | 2,400 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 75 | .0/.1 | | | | | | | 0 | 125 | 212 |
| 10,000 | 2,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 50 | .0/.1 | | | | | | | 0 | 135 | 221 |
| 11,000 | 2,400 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 25 | .0/.1 | | | | | | | 0 | 150 | 230 |
| 12,000 | 2,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | 0 | 165 | 238 |
| 13,000 | 2,400 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | 0 | 180 | 247 |
| 14,000 | 2,500 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | 0 | 190 | 256 |
| 15,000 | 2,500 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 205 | 265 |
| 16,000 | 2,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 220 | 273 |
| 17,000 | 2,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 230 | 282 |
| 18,000 | 2,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 245 | 291 |
| 19,000 | 2,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 260 | 300 |
| 20,000 | 2,600 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 270 | 308 |
| 21,000 | 2,600 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 285 | 317 |
| 22,000 | 2,600 | | | | | | | | | 0 | | | | | | | | 0 | 300 | 326 |
| 23,000 | 2,600 | | | | | | | | | 0 | | | | | | | | 0 | 315 | 335 |
| 24,000 | 2,600 | | | | | | | | | 0 | | | | | | | | 0 | 325 | 343 |
| 25,000 | 2,600 | | | | | | | | | 0 | | | | | | | | 0 | 340 | 352 |
| 26,000 | 2,700 | | | | | | | | | 0 | | | | | | | | 0 | 355 | 361 |
| 27,000 | 2,700 | | | | | | | | | 0 | | | | | | | | 0 | 365 | 370 |
| 28,000 | 2,700 | | | | | | | | | 0 | | | | | | | | 0 | 380 | 378 |
| 29,000 | 2,700 | | | | | | | | | 0 | | | | | | | | 0 | 395 | 387 |
| 30,000 | 2,700 | | | | | | | | | 0 | | | | | | | | 0 | 405 | 396 |

Figure 3.3a(2).

¹Long-Range Cannon.

**MATERIEL Targets
Long-Range Cannon**

**LOW Airburst
Precludes fallout**

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|-----------------------------------|-------------------------------|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | | | Prob min
R_D
(meters) |
| | | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | | | |
| 3,000 | 3,200 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 500 | .8/.9 | .7/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 300 | 45 | 91 |
| 4,000 | 3,300 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 500 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 275 | 55 | 91 |
| 5,000 | 3,300 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 500 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 275 | 70 | 96 |
| 6,000 | 3,400 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 500 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 275 | 85 | 105 |
| 7,000 | 3,400 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 475 | .7/.8 | .6/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | 250 | 95 | 114 |
| 8,000 | 3,400 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 475 | .6/.8 | .4/.7 | .3/.5 | .2/.4 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | 200 | 110 | 122 |
| 9,000 | 3,400 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 450 | .5/.7 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | 175 | 125 | 131 |
| 10,000 | 3,400 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 450 | .4/.7 | .2/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 150 | 135 | 140 |
| 11,000 | 3,400 | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 450 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 150 | 150 | 149 |
| 12,000 | 3,500 | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 425 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 125 | 165 | 157 |
| 13,000 | 3,500 | .7/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 425 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 100 | 180 | 166 |
| 14,000 | 3,500 | .7/.8 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 400 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 75 | 190 | 175 |
| 15,000 | 3,500 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 400 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 50 | 205 | 184 |
| 16,000 | 3,500 | .6/.8 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 375 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 25 | 220 | 192 |
| 17,000 | 3,500 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 350 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 25 | 230 | 201 |
| 18,000 | 3,600 | .5/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 275 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 245 | 210 |
| 19,000 | 3,600 | .2/.7 | .1/.6 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 200 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 260 | 219 |
| 20,000 | 3,600 | .1/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 175 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 270 | 227 |
| 21,000 | 3,600 | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 125 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | 285 | 236 |
| 22,000 | 3,600 | .0/.6 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 100 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | 300 | 245 |
| 23,000 | 3,600 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 75 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | 315 | 254 |
| 24,000 | 3,700 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 50 | .0/.2 | .0/.1 | | | | | | | 0 | 325 | 262 |
| 25,000 | 3,700 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 340 | 271 |
| 26,000 | 3,700 | .0/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 355 | 280 |
| 27,000 | 3,700 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 365 | 289 |
| 28,000 | 3,700 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 380 | 297 |
| 29,000 | 3,800 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 395 | 306 |
| 30,000 | 3,800 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 405 | 315 |

Figure 3.3b(1).

MATERIEL Targets
Long-Range Cannon

DELTA/5 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|--|---|-----------------------------------|-------------------------------|-----|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | | Prob min
R_D
(meters) | |
| | | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | | 100 | 150 | 200 | 250 | 300 | 350 | | | | | |
| 3,000 | 3,300 | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | 425 | .8/.9 | .5/.7 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 100 | 45 | 207 |
| 4,000 | 3,300 | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | 425 | .6/.8 | .3/.6 | .1/.4 | .1/.2 | .0/.2 | .0/.1 | | | 100 | 55 | 215 |
| 5,000 | 3,300 | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 400 | .4/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.1 | | | | 75 | 70 | 224 |
| 6,000 | 3,300 | .9/.9 | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | 400 | .2/.6 | .0/.3 | .0/.2 | .0/.1 | | | | | 50 | 85 | 233 |
| 7,000 | 3,400 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | 375 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 25 | 95 | 242 |
| 8,000 | 3,400 | .9/.9 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 325 | .0/.4 | .0/.2 | .0/.1 | | | | | | 0 | 110 | 250 |
| 9,000 | 3,400 | .9/.9 | .7/.9 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | 250 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 125 | 259 |
| 10,000 | 3,400 | .7/.9 | .4/.8 | .2/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | 200 | .0/.3 | .0/.1 | | | | | | | 0 | 135 | 268 |
| 11,000 | 3,400 | .5/.9 | .3/.7 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 150 | .0/.2 | .0/.1 | | | | | | | 0 | 150 | 277 |
| 12,000 | 3,500 | .3/.8 | .2/.7 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 125 | .0/.2 | .0/.1 | | | | | | | 0 | 165 | 285 |
| 13,000 | 3,500 | .2/.7 | .0/.6 | .0/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | 100 | .0/.2 | .0/.1 | | | | | | | 0 | 180 | 294 |
| 14,000 | 3,500 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 50 | .0/.1 | | | | | | | | 0 | 190 | 303 |
| 15,000 | 3,500 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 25 | .0/.1 | | | | | | | | 0 | 205 | 312 |
| 16,000 | 3,500 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.1 | | | | | | | | 0 | 220 | 320 |
| 17,000 | 3,500 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.1 | | | | | | | | 0 | 230 | 329 |
| 18,000 | 3,600 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 245 | 338 |
| 19,000 | 3,600 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 260 | 347 |
| 20,000 | 3,600 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 270 | 355 |
| 21,000 | 3,600 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 285 | 364 |
| 22,000 | 3,600 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 300 | 373 |
| 23,000 | 3,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 315 | 382 |
| 24,000 | 3,700 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 325 | 390 |
| 25,000 | 3,700 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | | 0 | 340 | 399 |
| 26,000 | 3,700 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | | 0 | 355 | 408 |
| 27,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 365 | 417 |
| 28,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 380 | 425 |
| 29,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 395 | 434 |
| 30,000 | 3,800 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 405 | 443 |

LRC 1

Figure 3.3b(2)

¹Long-Range Cannon.

MATERIEL Targets
Long-Range Cannon

LOW Airburst
Precludes fallout

| Range | Minimum
safe
distance
(negligible
risk,
UnW Ex) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | | Offset
distance
d_o | Height
of
burst |
|----------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------|------------------------|---------------------|-------|-------|-------|-------|-------|-------|-------------------|-----------------------------|-----------------------|
| | | WHEELED VEHICLES | | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D | Target radius (meters) | | | | | | | | Prob min
R_D | | |
| | | 700 | 800 | 900 | 1,000 | 1,100 | 1,200 | 1,300 | 1,400 | | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | | | |
| (meters) | (meters) | | | | | | | | | (meters) | | | | | | | | | (meters) | (meters) | (meters) |
| 3,000 | 3,800 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 650 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 375 | 45 | 115 |
| 4,000 | 3,900 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 650 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 375 | 55 | 115 |
| 5,000 | 4,100 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 650 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 375 | 70 | 115 |
| 6,000 | 4,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 650 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 375 | 85 | 118 |
| 7,000 | 4,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 650 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 350 | 95 | 127 |
| 8,000 | 4,200 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 650 | .9/.9 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 350 | 110 | 135 |
| 9,000 | 4,200 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | .9/.9 | .8/.9 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 300 | 125 | 144 |
| 10,000 | 4,200 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | .9/.9 | .7/.9 | .4/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | 275 | 135 | 153 |
| 11,000 | 4,300 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 625 | .8/.9 | .6/.8 | .3/.6 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 250 | 150 | 162 |
| 12,000 | 4,300 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 600 | .7/.9 | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 225 | 165 | 170 |
| 13,000 | 4,300 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 600 | .6/.9 | .4/.7 | .2/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 200 | 180 | 179 |
| 14,000 | 4,300 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | .5/.8 | .3/.7 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | 175 | 190 | 188 |
| 15,000 | 4,300 | .6/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 575 | .4/.8 | .2/.6 | .1/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 150 | 205 | 197 |
| 16,000 | 4,400 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 550 | .3/.7 | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 150 | 220 | 205 |
| 17,000 | 4,400 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 550 | .2/.7 | .1/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 125 | 230 | 214 |
| 18,000 | 4,400 | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 525 | .2/.6 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 100 | 245 | 223 |
| 19,000 | 4,400 | .5/.6 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 525 | .1/.6 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 75 | 260 | 232 |
| 20,000 | 4,400 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 500 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 50 | 270 | 240 |
| 21,000 | 4,400 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 475 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 25 | 285 | 249 |
| 22,000 | 4,500 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 300 | 258 |
| 23,000 | 4,500 | .2/.6 | .1/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.2 | 350 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 315 | 267 |
| 24,000 | 4,500 | .1/.5 | .1/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 275 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 325 | 275 |
| 25,000 | 4,500 | .1/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225 | .0/.4 | .0/.2 | .0/.1 | | | | | | 0 | 340 | 284 |
| 26,000 | 4,500 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 200 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 355 | 293 |
| 27,000 | 4,500 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 175 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 365 | 302 |
| 28,000 | 4,600 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 125 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 380 | 310 |
| 29,000 | 4,600 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 100 | .0/.3 | .0/.2 | .0/.2 | | | | | | 0 | 395 | 319 |
| 30,000 | 4,600 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 75 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 405 | 328 |

Figure 3.3c(1).

MATERIEL Targets
Long-Range Cannon

ECHO/10 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|--|--|---|-----------------------------------|-------------------------------|-----|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | |
| | | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 1,200 | 1,300 | | 200 | 300 | 400 | 500 | | | | | | |
| 3,000 | 4,100 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 575 | .6/.8 | .2/.4 | .1/.2 | .1/.1 | | | | 175 | 45 | 259 |
| 4,000 | 4,100 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 550 | .4/.7 | .2/.3 | .1/.2 | .0/.1 | | | | 150 | 55 | 262 |
| 5,000 | 4,200 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 550 | .3/.6 | .1/.3 | .0/.2 | .0/.1 | | | | 125 | 70 | 271 |
| 6,000 | 4,200 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 525 | .2/.5 | .1/.2 | .0/.1 | | | | | 100 | 85 | 280 |
| 7,000 | 4,200 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 525 | .1/.4 | .0/.2 | .0/.1 | | | | | 75 | 95 | 289 |
| 8,000 | 4,200 | .6/.7 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 500 | .0/.3 | .0/.2 | .0/.1 | | | | | 50 | 110 | 297 |
| 9,000 | 4,200 | .6/.7 | .4/.6 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 475 | .0/.3 | .0/.1 | | | | | | 25 | 125 | 306 |
| 10,000 | 4,200 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.2 | .0/.1 | | | | | | 0 | 135 | 315 |
| 11,000 | 4,300 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 350 | .0/.2 | .0/.1 | | | | | | 0 | 150 | 324 |
| 12,000 | 4,300 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .1/.2 | .0/.2 | .0/.1 | 275 | .0/.2 | .0/.1 | | | | | | 0 | 165 | 332 |
| 13,000 | 4,300 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225 | .0/.1 | | | | | | | 0 | 180 | 341 |
| 14,000 | 4,300 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 200 | .0/.1 | | | | | | | 0 | 190 | 350 |
| 15,000 | 4,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 175 | .0/.1 | | | | | | | 0 | 205 | 359 |
| 16,000 | 4,300 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 125 | .0/.1 | | | | | | | 0 | 220 | 367 |
| 17,000 | 4,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 100 | .0/.1 | | | | | | | 0 | 230 | 376 |
| 18,000 | 4,400 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 75 | .0/.1 | | | | | | | 0 | 245 | 385 |
| 19,000 | 4,400 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 25 | .0/.1 | | | | | | | 0 | 260 | 394 |
| 20,000 | 4,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | 0 | 270 | 402 |
| 21,000 | 4,400 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | 0 | 285 | 411 |
| 22,000 | 4,400 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | 0 | 300 | 420 |
| 23,000 | 4,500 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | 0 | 315 | 429 |
| 24,000 | 4,500 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 325 | 437 |
| 25,000 | 4,500 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 340 | 446 |
| 26,000 | 4,500 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 355 | 455 |
| 27,000 | 4,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 365 | 464 |
| 28,000 | 4,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 380 | 472 |
| 29,000 | 4,600 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 395 | 481 |
| 30,000 | 4,600 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 405 | 490 |

LRC 1

Figure 3.3c(2).

¹Long-Range Cannon.

MATERIEL Targets
Long-Range Cannon

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|-----------------------------------|-------------------------------|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | | | Prob min
R_D
(meters) |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | | | |
| 3,000 | 5,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .9/.9 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 500 | 45 | 144 |
| 4,000 | 5,300 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .9/.9 | .8/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 500 | 55 | 144 |
| 5,000 | 5,500 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 500 | 70 | 144 |
| 6,000 | 5,700 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 500 | 85 | 144 |
| 7,000 | 5,900 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 500 | 95 | 144 |
| 8,000 | 6,000 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 475 | 110 | 152 |
| 9,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 475 | 125 | 161 |
| 10,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 450 | 135 | 170 |
| 11,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 850 | .8/.9 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 425 | 150 | 179 |
| 12,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 825 | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 375 | 165 | 187 |
| 13,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 825 | .6/.9 | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 350 | 180 | 196 |
| 14,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 800 | .6/.8 | .4/.7 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | 325 | 190 | 205 |
| 15,000 | 6,200 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 800 | .5/.8 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 300 | 205 | 214 |
| 16,000 | 6,200 | .9/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 775 | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 275 | 220 | 222 |
| 17,000 | 6,200 | .9/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 775 | .4/.7 | .2/.6 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 250 | 230 | 231 |
| 18,000 | 6,200 | .9/.9 | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 775 | .3/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225 | 245 | 240 |
| 19,000 | 6,200 | .9/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 750 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 200 | 260 | 249 |
| 20,000 | 6,200 | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 750 | .2/.6 | .1/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 175 | 270 | 257 |
| 21,000 | 6,300 | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 725 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 175 | 285 | 266 |
| 22,000 | 6,300 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 700 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 150 | 300 | 275 |
| 23,000 | 6,300 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 700 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 125 | 315 | 284 |
| 24,000 | 6,300 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 675 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 100 | 325 | 292 |
| 25,000 | 6,300 | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 675 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 75 | 340 | 301 |
| 26,000 | 6,400 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 650 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 50 | 355 | 310 |
| 27,000 | 6,400 | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 625 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 25 | 365 | 319 |
| 28,000 | 6,400 | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 575 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 380 | 327 |
| 29,000 | 6,400 | .5/.8 | .3/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 450 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 390 | 336 |
| 30,000 | 6,400 | .4/.8 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 375 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 405 | 345 |

Figure 3.3d(1)

MATERIEL Targets
Long-Range Cannon

FOXTROT/20 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-------------------------------|---|-----------------------------------|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | Prob min
R_D
(meters) | | |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | | 200 | 300 | 400 | 500 | 600 | 700 | | | |
| 3,000 | 5,900 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 750 | .9/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 225 | 45 | 326 |
| 4,000 | 6,000 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 750 | .8/.9 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | 200 | 55 | 326 |
| 5,000 | 6,000 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 725 | .7/.9 | .3/.6 | .2/.3 | .1/.2 | .0/.1 | | 175 | 70 | 330 |
| 6,000 | 6,000 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 725 | .6/.8 | .2/.5 | .1/.3 | .1/.2 | .0/.1 | | 175 | 85 | 339 |
| 7,000 | 6,000 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 700 | .4/.7 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | 150 | 98 | 348 |
| 8,000 | 6,000 | .9/.9 | .9/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 700 | .3/.6 | .1/.4 | .0/.2 | .0/.1 | | | 125 | 110 | 356 |
| 9,000 | 6,000 | .9/.9 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 675 | .2/.6 | .1/.3 | .0/.2 | .0/.1 | | | 100 | 125 | 365 |
| 10,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 675 | .1/.5 | .0/.3 | .0/.2 | .0/.1 | | | 75 | 135 | 374 |
| 11,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 650 | .0/.4 | .0/.2 | .0/.1 | | | | 50 | 150 | 383 |
| 12,000 | 6,100 | .9/.9 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 625 | .0/.4 | .0/.2 | .0/.1 | | | | 25 | 165 | 391 |
| 13,000 | 6,100 | .9/.9 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 550 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 180 | 400 |
| 14,000 | 6,100 | .9/.9 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 450 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 190 | 409 |
| 15,000 | 6,200 | .8/.9 | .4/.8 | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 375 | .0/.2 | .0/.1 | | | | | 0 | 205 | 419 |
| 16,000 | 6,200 | .6/.9 | .3/.7 | .1/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 325 | .0/.2 | .0/.1 | | | | | 0 | 220 | 426 |
| 17,000 | 6,200 | .5/.8 | .2/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | 275 | .0/.2 | .0/.1 | | | | | 0 | 230 | 435 |
| 18,000 | 6,200 | .4/.8 | .2/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 250 | .0/.1 | | | | | | 0 | 245 | 444 |
| 19,000 | 6,200 | .3/.8 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 200 | .0/.1 | | | | | | 0 | 260 | 453 |
| 20,000 | 6,200 | .2/.7 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 175 | .0/.1 | | | | | | 0 | 270 | 461 |
| 21,000 | 6,300 | .1/.7 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 150 | .0/.1 | | | | | | 0 | 285 | 470 |
| 22,000 | 6,300 | .0/.6 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 100 | .0/.1 | | | | | | 0 | 300 | 479 |
| 23,000 | 6,300 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 75 | .0/.1 | | | | | | 0 | 315 | 488 |
| 24,000 | 6,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 50 | .0/.1 | | | | | | 0 | 325 | 496 |
| 25,000 | 6,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | 0 | 340 | 505 |
| 26,000 | 6,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | 0 | 355 | 514 |
| 27,000 | 6,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | | | | | | | 0 | 365 | 523 |
| 28,000 | 6,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | | | | | | | 0 | 380 | 531 |
| 29,000 | 6,400 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | | | | | | | 0 | 390 | 540 |
| 30,000 | 6,400 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | | | | | | | 0 | 405 | 549 |

LRC 1

Figure 3.3d(2).

¹Long-Range Cannon.

MATERIEL Targets
Long-Range Cannon
LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|--|-----------------------------------|--|-------|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | | Prob min
R _D
(meters) | |
| | | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 2,600 | 2,800 | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | | | 1,800 |
| 3,000 | 7,200 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 750 | 45 | 196 |
| 4,000 | 7,400 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 725 | 55 | 196 |
| 5,000 | 7,600 | .7/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 725 | 70 | 196 |
| 6,000 | 7,800 | .7/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 725 | 85 | 196 |
| 7,000 | 8,000 | .7/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 725 | 95 | 196 |
| 8,000 | 8,200 | .7/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 725 | 110 | 196 |
| 9,000 | 8,500 | .7/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 725 | 125 | 196 |
| 10,000 | 8,700 | .7/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .9/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 700 | 135 | 199 |
| 11,000 | 8,900 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 700 | 150 | 208 |
| 12,000 | 8,900 | .6/.7 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 675 | 165 | 216 |
| 13,000 | 9,000 | .6/.7 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 650 | 180 | 225 |
| 14,000 | 9,000 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,225 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625 | 190 | 234 |
| 15,000 | 9,000 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,200 | .9/.9 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 600 | 205 | 243 |
| 16,000 | 9,000 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,200 | .9/.9 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 575 | 220 | 251 |
| 17,000 | 9,000 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,200 | .9/.9 | .7/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 525 | 230 | 260 |
| 18,000 | 9,000 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,175 | .8/.9 | .6/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 500 | 245 | 269 |
| 19,000 | 9,100 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,175 | .8/.9 | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 475 | 260 | 278 |
| 20,000 | 9,100 | .6/.7 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,150 | .8/.9 | .5/.8 | .3/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 450 | 270 | 286 |
| 21,000 | 9,100 | .6/.7 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,150 | .7/.9 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 425 | 285 | 295 |
| 22,000 | 9,100 | .6/.7 | .4/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,125 | .7/.9 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | 400 | 300 | 304 |
| 23,000 | 9,100 | .6/.7 | .4/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,125 | .6/.9 | .3/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 375 | 315 | 313 |
| 24,000 | 9,200 | .5/.7 | .4/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,100 | .5/.8 | .3/.7 | .1/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 350 | 325 | 321 |
| 25,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.2 | .2/.2 | .1/.2 | 1,100 | .5/.8 | .2/.6 | .1/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 325 | 340 | 330 |
| 26,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 1,075 | .4/.8 | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 300 | 355 | 339 |
| 27,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 1,075 | .4/.7 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | 275 | 365 | 348 |
| 28,000 | 9,200 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 1,050 | .3/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 250 | 380 | 356 |
| 29,000 | 9,200 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 1,050 | .3/.7 | .1/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 225 | 395 | 365 |
| 30,000 | 9,300 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 1,025 | .2/.7 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 200 | 405 | 374 |

Figure 3.3e(1).

MATERIEL Targets
Long-Range Cannon

GOLF/50 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Offset
distance
d_0
(meters) | Height
of
burst
(meters) | | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|--|---|-----------------------------------|-------------------------------|-----|-----|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | | |
| | | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | | 400 | 600 | 800 | 1,000 | 1,200 | | | | | | |
| 3,000 | 8,800 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 1,125 | .7/.8 | .3/.4 | .1/.2 | .1/.2 | .0/.1 | | | | 350 | 45 | 442 |
| 4,000 | 8,800 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 1,100 | .6/.8 | .3/.4 | .1/.2 | .1/.1 | | | | | 325 | 55 | 442 |
| 5,000 | 8,800 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 1,100 | .5/.7 | .2/.4 | .1/.2 | .0/.1 | | | | | 300 | 70 | 442 |
| 6,000 | 8,800 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 1,075 | .5/.7 | .2/.3 | .1/.2 | .0/.1 | | | | | 275 | 85 | 442 |
| 7,000 | 8,800 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 1,050 | .4/.6 | .1/.3 | .1/.2 | .0/.1 | | | | | 275 | 95 | 449 |
| 8,000 | 8,900 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 1,050 | .3/.6 | .1/.3 | .0/.2 | .0/.1 | | | | | 250 | 110 | 457 |
| 9,000 | 8,900 | .8/.9 | .6/.7 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 1,025 | .2/.5 | .1/.3 | .0/.1 | | | | | | 225 | 125 | 466 |
| 10,000 | 8,900 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 1,025 | .2/.5 | .1/.2 | .0/.1 | | | | | | 200 | 135 | 475 |
| 11,000 | 8,900 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 1,000 | .1/.4 | .0/.2 | .0/.1 | | | | | | 175 | 150 | 484 |
| 12,000 | 8,900 | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 1,000 | .1/.4 | .0/.2 | .0/.1 | | | | | | 150 | 165 | 492 |
| 13,000 | 9,000 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 975 | .0/.4 | .0/.2 | .0/.1 | | | | | | 125 | 180 | 501 |
| 14,000 | 9,000 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 950 | .0/.3 | .0/.2 | .0/.1 | | | | | | 100 | 190 | 510 |
| 15,000 | 9,000 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 925 | .0/.3 | .0/.1 | | | | | | | 75 | 205 | 519 |
| 16,000 | 9,000 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 900 | .0/.3 | .0/.1 | | | | | | | 50 | 220 | 527 |
| 17,000 | 9,000 | .7/.8 | .5/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 875 | .0/.2 | .0/.1 | | | | | | | 25 | 230 | 536 |
| 18,000 | 9,000 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 775 | .0/.2 | .0/.1 | | | | | | | 0 | 245 | 545 |
| 19,000 | 9,100 | .4/.7 | .2/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 650 | .0/.2 | .0/.1 | | | | | | | 0 | 260 | 554 |
| 20,000 | 9,100 | .3/.7 | .2/.6 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 575 | .0/.2 | .0/.1 | | | | | | | 0 | 270 | 562 |
| 21,000 | 9,100 | .2/.7 | .1/.6 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 500 | .0/.2 | .0/.1 | | | | | | | 0 | 285 | 571 |
| 22,000 | 9,100 | .2/.7 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 450 | .0/.1 | | | | | | | | 0 | 300 | 580 |
| 23,000 | 9,100 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 425 | .0/.1 | | | | | | | | 0 | 315 | 589 |
| 24,000 | 9,100 | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 375 | .0/.1 | | | | | | | | 0 | 325 | 597 |
| 25,000 | 9,200 | .1/.6 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 350 | .0/.1 | | | | | | | | 0 | 340 | 606 |
| 26,000 | 9,200 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 300 | .0/.1 | | | | | | | | 0 | 355 | 615 |
| 27,000 | 9,200 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 250 | .0/.1 | | | | | | | | 0 | 365 | 624 |
| 28,000 | 9,200 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 225 | .0/.1 | | | | | | | | 0 | 380 | 632 |
| 29,000 | 9,200 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 200 | .0/.1 | | | | | | | | 0 | 395 | 641 |
| 30,000 | 9,200 | .0/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 150 | .0/.1 | | | | | | | | 0 | 405 | 650 |

LRC 1

Figure 3.3e(2).

LOW Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 3,000 | 2,300 | 1,700 | 1,400 | 1,900 | 1,600 | 1,400 | 1,500 | 1,300 | 1,100 |
| 4,000 | 2,300 | 1,700 | 1,400 | 1,900 | 1,600 | 1,400 | 1,600 | 1,300 | 1,100 |
| 5,000 | 2,300 | 1,700 | 1,400 | 1,900 | 1,600 | 1,400 | 1,600 | 1,300 | 1,100 |
| 6,000 | 2,300 | 1,700 | 1,500 | 1,900 | 1,600 | 1,500 | 1,600 | 1,400 | 1,100 |
| 7,000 | 2,300 | 1,700 | 1,500 | 1,900 | 1,700 | 1,500 | 1,600 | 1,400 | 1,100 |
| 8,000 | 2,400 | 1,800 | 1,500 | 1,900 | 1,700 | 1,500 | 1,600 | 1,400 | 1,100 |
| 9,000 | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,600 | 1,400 | 1,200 |
| 10,000 | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,700 | 1,400 | 1,200 |
| 11,000 | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,700 | 1,400 | 1,200 |
| 12,000 | 2,400 | 1,800 | 1,600 | 2,000 | 1,800 | 1,600 | 1,700 | 1,500 | 1,200 |
| 13,000 | 2,400 | 1,800 | 1,600 | 2,000 | 1,800 | 1,600 | 1,700 | 1,500 | 1,200 |
| 14,000 | 2,500 | 1,900 | 1,600 | 2,100 | 1,800 | 1,600 | 1,700 | 1,500 | 1,200 |
| 15,000 | 2,500 | 1,900 | 1,600 | 2,100 | 1,800 | 1,600 | 1,700 | 1,500 | 1,300 |
| 16,000 | 2,500 | 1,900 | 1,600 | 2,100 | 1,800 | 1,600 | 1,800 | 1,500 | 1,300 |
| 17,000 | 2,500 | 1,900 | 1,600 | 2,100 | 1,800 | 1,600 | 1,800 | 1,600 | 1,300 |
| 18,000 | 2,500 | 1,900 | 1,700 | 2,100 | 1,900 | 1,700 | 1,800 | 1,600 | 1,300 |
| 19,000 | 2,500 | 2,000 | 1,700 | 2,100 | 1,900 | 1,700 | 1,800 | 1,600 | 1,300 |
| 20,000 | 2,600 | 2,000 | 1,700 | 2,200 | 1,900 | 1,700 | 1,800 | 1,600 | 1,400 |
| 21,000 | 2,600 | 2,000 | 1,700 | 2,200 | 1,900 | 1,700 | 1,900 | 1,600 | 1,400 |
| 22,000 | 2,600 | 2,000 | 1,700 | 2,200 | 1,900 | 1,700 | 1,900 | 1,600 | 1,400 |
| 23,000 | 2,600 | 2,000 | 1,700 | 2,200 | 1,900 | 1,700 | 1,900 | 1,700 | 1,400 |
| 24,000 | 2,600 | 2,000 | 1,800 | 2,200 | 2,000 | 1,800 | 1,900 | 1,700 | 1,400 |
| 25,000 | 2,700 | 2,100 | 1,800 | 2,200 | 2,000 | 1,800 | 1,900 | 1,700 | 1,400 |
| 26,000 | 2,700 | 2,100 | 1,800 | 2,300 | 2,000 | 1,800 | 1,900 | 1,700 | 1,500 |
| 27,000 | 2,700 | 2,100 | 1,800 | 2,300 | 2,000 | 1,800 | 2,000 | 1,700 | 1,500 |
| 28,000 | 2,700 | 2,100 | 1,800 | 2,300 | 2,000 | 1,800 | 2,000 | 1,700 | 1,500 |
| 29,000 | 2,700 | 2,100 | 1,800 | 2,300 | 2,000 | 1,800 | 2,000 | 1,800 | 1,500 |
| 30,000 | 2,700 | 2,100 | 1,900 | 2,300 | 2,100 | 1,900 | 2,000 | 1,800 | 1,500 |

Figure 3.4a(1)

HIGH Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 3,000 | 2,300 | 1,700 | 1,400 | 1,900 | 1,600 | 1,400 | 1,500 | 1,300 | 1,100 |
| 4,000 | 2,300 | 1,700 | 1,400 | 1,900 | 1,600 | 1,400 | 1,600 | 1,300 | 1,100 |
| 5,000 | 2,300 | 1,700 | 1,400 | 1,900 | 1,600 | 1,400 | 1,600 | 1,300 | 1,100 |
| 6,000 | 2,300 | 1,700 | 1,400 | 1,900 | 1,600 | 1,400 | 1,600 | 1,400 | 1,100 |
| 7,000 | 2,300 | 1,700 | 1,500 | 1,900 | 1,700 | 1,500 | 1,600 | 1,400 | 1,100 |
| 8,000 | 2,400 | 1,800 | 1,500 | 1,900 | 1,700 | 1,500 | 1,600 | 1,400 | 1,100 |
| 9,000 | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,600 | 1,400 | 1,200 |
| 10,000 | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,700 | 1,400 | 1,200 |
| 11,000 | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,700 | 1,400 | 1,200 |
| 12,000 | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,700 | 1,500 | 1,200 |
| 13,000 | 2,400 | 1,800 | 1,600 | 2,000 | 1,800 | 1,600 | 1,700 | 1,500 | 1,200 |
| 14,000 | 2,500 | 1,900 | 1,600 | 2,000 | 1,800 | 1,600 | 1,700 | 1,500 | 1,200 |
| 15,000 | 2,500 | 1,900 | 1,600 | 2,100 | 1,800 | 1,600 | 1,700 | 1,500 | 1,300 |
| 16,000 | 2,500 | 1,900 | 1,600 | 2,100 | 1,800 | 1,600 | 1,800 | 1,500 | 1,300 |
| 17,000 | 2,500 | 1,900 | 1,600 | 2,100 | 1,800 | 1,600 | 1,800 | 1,500 | 1,300 |
| 18,000 | 2,500 | 1,900 | 1,600 | 2,100 | 1,800 | 1,600 | 1,800 | 1,600 | 1,300 |
| 19,000 | 2,500 | 1,900 | 1,700 | 2,100 | 1,900 | 1,700 | 1,800 | 1,600 | 1,300 |
| 20,000 | 2,600 | 2,000 | 1,700 | 2,100 | 1,900 | 1,700 | 1,800 | 1,600 | 1,300 |
| 21,000 | 2,600 | 2,000 | 1,700 | 2,200 | 1,900 | 1,700 | 1,800 | 1,600 | 1,400 |
| 22,000 | 2,600 | 2,000 | 1,700 | 2,200 | 1,900 | 1,700 | 1,900 | 1,600 | 1,400 |
| 23,000 | 2,600 | 2,000 | 1,700 | 2,200 | 1,900 | 1,700 | 1,900 | 1,600 | 1,400 |
| 24,000 | 2,600 | 2,000 | 1,700 | 2,200 | 1,900 | 1,700 | 1,900 | 1,700 | 1,400 |
| 25,000 | 2,600 | 2,000 | 1,800 | 2,200 | 2,000 | 1,800 | 1,900 | 1,700 | 1,400 |
| 26,000 | 2,700 | 2,100 | 1,800 | 2,200 | 2,000 | 1,800 | 1,900 | 1,700 | 1,400 |
| 27,000 | 2,700 | 2,100 | 1,800 | 2,300 | 2,000 | 1,800 | 1,900 | 1,700 | 1,500 |
| 28,000 | 2,700 | 2,100 | 1,800 | 2,300 | 2,000 | 1,800 | 2,000 | 1,700 | 1,500 |
| 29,000 | 2,700 | 2,100 | 1,800 | 2,300 | 2,000 | 1,800 | 2,000 | 1,700 | 1,500 |
| 30,000 | 2,700 | 2,100 | 1,800 | 2,300 | 2,000 | 1,800 | 2,000 | 1,800 | 1,500 |

Figure 3.4a(2)

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 3.5 for special friendly troop orientations.

Troop Safety Distances—Meters Long-Range Cannon

DELTA/5 KT

LOW Airburst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 3,000 | 3,200 | 2,400 | 2,000 | 2,100 | 1,800 | 1,500 | 1,700 | 1,400 | 1,200 |
| 4,000 | 3,300 | 2,500 | 2,100 | 2,100 | 1,800 | 1,500 | 1,700 | 1,500 | 1,200 |
| 5,000 | 3,300 | 2,500 | 2,100 | 2,200 | 1,800 | 1,500 | 1,800 | 1,500 | 1,200 |
| 6,000 | 3,400 | 2,500 | 2,100 | 2,200 | 1,900 | 1,500 | 1,800 | 1,500 | 1,300 |
| 7,000 | 3,400 | 2,500 | 2,220 | 2,200 | 1,900 | 1,500 | 1,800 | 1,500 | 1,300 |
| 8,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 9,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 10,000 | 3,400 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 11,000 | 3,400 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 12,000 | 3,500 | 2,600 | 2,200 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,400 |
| 13,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,400 |
| 14,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 15,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 16,000 | 3,500 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 17,000 | 3,500 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 18,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,700 | 2,000 | 1,700 | 1,500 |
| 19,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,700 | 2,000 | 1,700 | 1,500 |
| 20,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 21,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 22,000 | 3,600 | 2,800 | 2,400 | 2,500 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 23,000 | 3,600 | 2,800 | 2,400 | 2,500 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 24,000 | 3,700 | 2,800 | 2,500 | 2,500 | 2,200 | 1,800 | 2,100 | 1,800 | 1,600 |
| 25,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,800 | 2,100 | 1,800 | 1,600 |
| 26,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 27,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 28,000 | 3,700 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,200 | 1,900 | 1,600 |
| 29,000 | 3,800 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,200 | 1,900 | 1,600 |
| 30,000 | 3,800 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,200 | 1,900 | 1,600 |

Figure 3.4b(1)

HIGH Airburst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 3,000 | 3,300 | 2,500 | 2,100 | 2,100 | 1,800 | 1,500 | 1,700 | 1,500 | 1,200 |
| 4,000 | 3,300 | 2,500 | 2,100 | 2,100 | 1,800 | 1,500 | 1,700 | 1,500 | 1,200 |
| 5,000 | 3,300 | 2,500 | 2,100 | 2,200 | 1,800 | 1,500 | 1,700 | 1,500 | 1,200 |
| 6,000 | 3,300 | 2,500 | 2,100 | 2,200 | 1,800 | 1,500 | 1,800 | 1,500 | 1,200 |
| 7,000 | 3,400 | 2,500 | 2,200 | 2,200 | 1,900 | 1,500 | 1,800 | 1,500 | 1,300 |
| 8,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,500 | 1,800 | 1,500 | 1,300 |
| 9,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 10,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 11,000 | 3,400 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 12,000 | 3,500 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 13,000 | 3,500 | 2,600 | 2,300 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,400 |
| 14,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,400 |
| 15,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 16,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 17,000 | 3,500 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 18,000 | 3,600 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 19,000 | 3,600 | 2,700 | 2,400 | 2,400 | 2,100 | 1,700 | 2,000 | 1,700 | 1,500 |
| 20,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,700 | 2,000 | 1,700 | 1,500 |
| 21,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 22,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 23,000 | 3,600 | 2,800 | 2,400 | 2,500 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 24,000 | 3,700 | 2,800 | 2,400 | 2,500 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 25,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,800 | 2,200 | 1,800 | 1,600 |
| 26,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,800 | 2,200 | 1,800 | 1,600 |
| 27,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 28,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 29,000 | 3,700 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 30,000 | 3,800 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |

Figure 3.4b(2)

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 3.5 for special friendly troop orientations.

LRC 1

Troop Safety Distances—Meters
Long-Range Cannon

LOW Airburst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 3,000 | 3,800 | 3,000 | 2,700 | 2,600 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 4,000 | 3,900 | 3,100 | 2,900 | 2,700 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 5,000 | 4,100 | 3,300 | 3,000 | 2,800 | 2,000 | 1,700 | 1,900 | 1,600 | 1,300 |
| 6,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 7,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 8,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 9,000 | 4,200 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 10,000 | 4,200 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 11,000 | 4,300 | 3,400 | 3,200 | 2,900 | 2,100 | 1,800 | 2,000 | 1,700 | 1,400 |
| 12,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 13,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 14,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 15,000 | 4,300 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 16,000 | 4,400 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 17,000 | 4,400 | 3,500 | 3,300 | 3,000 | 2,200 | 1,900 | 2,100 | 1,800 | 1,500 |
| 18,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 19,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 20,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 21,000 | 4,400 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 22,000 | 4,500 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,200 | 1,900 | 1,600 |
| 23,000 | 4,500 | 3,600 | 3,400 | 3,100 | 2,300 | 2,000 | 2,200 | 1,900 | 1,600 |
| 24,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 25,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 26,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 27,000 | 4,500 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 28,000 | 4,600 | 3,700 | 3,500 | 3,200 | 2,400 | 2,000 | 2,200 | 2,000 | 1,700 |
| 29,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,400 | 2,100 | 2,200 | 2,000 | 1,700 |
| 30,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,400 | 2,100 | 2,300 | 2,000 | 1,800 |

Figure 3.4c(1).

HIGH Airburst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 3,000 | 4,100 | 3,300 | 3,000 | 2,700 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 4,000 | 4,100 | 3,300 | 3,100 | 2,800 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 5,000 | 4,200 | 3,300 | 3,100 | 2,800 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 6,000 | 4,200 | 3,300 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,600 | 1,300 |
| 7,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,700 | 1,300 |
| 8,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 9,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 10,000 | 4,200 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 11,000 | 4,300 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 12,000 | 4,300 | 3,400 | 3,200 | 2,900 | 2,100 | 1,800 | 2,100 | 1,700 | 1,400 |
| 13,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,100 | 1,700 | 1,400 |
| 14,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,100 | 1,700 | 1,500 |
| 15,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 16,000 | 4,300 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 17,000 | 4,400 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 18,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,300 | 1,800 | 1,500 |
| 19,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,300 | 1,800 | 1,500 |
| 20,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,400 | 1,800 | 1,600 |
| 21,000 | 4,400 | 3,600 | 3,400 | 3,000 | 2,200 | 1,900 | 2,400 | 1,800 | 1,600 |
| 22,000 | 4,400 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,400 | 1,800 | 1,600 |
| 23,000 | 4,500 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,500 | 1,900 | 1,600 |
| 24,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,500 | 1,900 | 1,600 |
| 25,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,500 | 1,900 | 1,600 |
| 26,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,600 | 1,900 | 1,700 |
| 27,000 | 4,500 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,600 | 2,000 | 1,700 |
| 28,000 | 4,500 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,700 | 2,000 | 1,700 |
| 29,000 | 4,600 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,700 | 2,000 | 1,700 |
| 30,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,400 | 2,100 | 2,700 | 2,000 | 1,700 |

Figure 3.4c(2).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 3.5 for special friendly troop orientations.

Troop Safety Distances—Meters Long-Range Cannon

FOXTROT/20 KT

LOW Airburst

| Range

(meters) | Minimum Distance Required for Troop Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|--|----------|------------|--------------------------|----------|------------|----------------------------|----------|------------|
| | Unwarned Exposed Personnel | | | Warned Exposed Personnel | | | Warned Protected Personnel | | |
| | NEG Risk | MOD Risk | EMERG Risk | NEG Risk | MOD Risk | EMERG Risk | NEG Risk | MOD Risk | EMERG Risk |
| 3,000 | 5,100 | 3,600 | 3,100 | 3,200 | 2,300 | 1,900 | 2,000 | 1,700 | 1,400 |
| 4,000 | 5,300 | 3,800 | 3,300 | 3,400 | 2,300 | 1,900 | 2,000 | 1,700 | 1,400 |
| 5,000 | 5,500 | 3,900 | 3,400 | 3,500 | 2,400 | 1,900 | 2,000 | 1,700 | 1,500 |
| 6,000 | 5,700 | 4,000 | 3,500 | 3,600 | 2,400 | 2,000 | 2,000 | 1,800 | 1,500 |
| 7,000 | 5,900 | 4,200 | 3,600 | 3,700 | 2,500 | 2,000 | 2,000 | 1,800 | 1,500 |
| 8,000 | 6,000 | 4,200 | 3,700 | 3,700 | 2,500 | 2,000 | 2,100 | 1,800 | 1,500 |
| 9,000 | 6,100 | 4,200 | 3,700 | 3,800 | 2,500 | 2,000 | 2,100 | 1,800 | 1,500 |
| 10,000 | 6,100 | 4,200 | 3,700 | 3,800 | 2,500 | 2,000 | 2,100 | 1,800 | 1,500 |
| 11,000 | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,100 | 2,100 | 1,800 | 1,600 |
| 12,000 | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,100 | 2,200 | 1,900 | 1,600 |
| 13,000 | 6,100 | 4,300 | 3,800 | 3,800 | 2,600 | 2,100 | 2,200 | 1,900 | 1,600 |
| 14,000 | 6,100 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,200 | 1,900 | 1,600 |
| 15,000 | 6,200 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,300 | 1,900 | 1,600 |
| 16,000 | 6,200 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,300 | 1,900 | 1,700 |
| 17,000 | 6,200 | 4,400 | 3,800 | 3,900 | 2,600 | 2,200 | 2,300 | 2,000 | 1,700 |
| 18,000 | 6,200 | 4,400 | 3,900 | 3,900 | 2,600 | 2,200 | 2,400 | 2,000 | 1,700 |
| 19,000 | 6,200 | 4,400 | 3,900 | 3,900 | 2,700 | 2,200 | 2,400 | 2,000 | 1,700 |
| 20,000 | 6,200 | 4,400 | 3,900 | 4,000 | 2,700 | 2,200 | 2,500 | 2,000 | 1,700 |
| 21,000 | 6,300 | 4,400 | 3,900 | 4,000 | 2,700 | 2,200 | 2,500 | 2,000 | 1,700 |
| 22,000 | 6,300 | 4,500 | 3,900 | 4,000 | 2,700 | 2,300 | 2,500 | 2,000 | 1,800 |
| 23,000 | 6,300 | 4,500 | 3,900 | 4,000 | 2,700 | 2,300 | 2,600 | 2,100 | 1,800 |
| 24,000 | 6,300 | 4,500 | 4,000 | 4,000 | 2,800 | 2,300 | 2,600 | 2,100 | 1,800 |
| 25,000 | 6,300 | 4,500 | 4,000 | 4,000 | 2,800 | 2,300 | 2,600 | 2,100 | 1,800 |
| 26,000 | 6,400 | 4,500 | 4,000 | 4,100 | 2,800 | 2,300 | 2,700 | 2,100 | 1,800 |
| 27,000 | 6,400 | 4,500 | 4,000 | 4,100 | 2,800 | 2,300 | 2,700 | 2,100 | 1,800 |
| 28,000 | 6,400 | 4,600 | 4,000 | 4,100 | 2,800 | 2,400 | 2,700 | 2,100 | 1,900 |
| 29,000 | 6,400 | 4,600 | 4,000 | 4,100 | 2,800 | 2,400 | 2,800 | 2,100 | 1,900 |
| 30,000 | 6,400 | 4,600 | 4,100 | 4,100 | 2,900 | 2,400 | 2,800 | 2,200 | 1,900 |

Figure 3.4d(1)

HIGH Airburst

| Range

(meters) | Minimum Distance Required for Troop Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|--|----------|------------|--------------------------|----------|------------|----------------------------|----------|------------|
| | Unwarned Exposed Personnel | | | Warned Exposed Personnel | | | Warned Protected Personnel | | |
| | NEG Risk | MOD Risk | EMERG Risk | NEG Risk | MOD Risk | EMERG Risk | NEG Risk | MOD Risk | EMERG Risk |
| 3,000 | 5,900 | 4,100 | 3,600 | 3,700 | 2,400 | 1,900 | 2,100 | 1,700 | 1,400 |
| 4,000 | 6,000 | 4,100 | 3,600 | 3,700 | 2,400 | 1,900 | 2,200 | 1,700 | 1,400 |
| 5,000 | 6,000 | 4,100 | 3,600 | 3,700 | 2,400 | 1,900 | 2,200 | 1,700 | 1,400 |
| 6,000 | 6,000 | 4,200 | 3,600 | 3,700 | 2,400 | 2,000 | 2,200 | 1,700 | 1,400 |
| 7,000 | 6,000 | 4,200 | 3,700 | 3,700 | 2,400 | 2,000 | 2,300 | 1,800 | 1,500 |
| 8,000 | 6,000 | 4,200 | 3,700 | 3,700 | 2,500 | 2,000 | 2,300 | 1,800 | 1,500 |
| 9,000 | 6,000 | 4,200 | 3,700 | 3,800 | 2,500 | 2,000 | 2,300 | 1,800 | 1,500 |
| 10,000 | 6,100 | 4,200 | 3,700 | 3,800 | 2,500 | 2,000 | 2,400 | 1,800 | 1,500 |
| 11,000 | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,000 | 2,400 | 1,800 | 1,500 |
| 12,000 | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,100 | 2,500 | 1,800 | 1,500 |
| 13,000 | 6,100 | 4,300 | 3,800 | 3,800 | 2,500 | 2,100 | 2,500 | 1,800 | 1,600 |
| 14,000 | 6,100 | 4,300 | 3,800 | 3,800 | 2,600 | 2,100 | 2,500 | 1,900 | 1,600 |
| 15,000 | 6,200 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,600 | 1,900 | 1,600 |
| 16,000 | 6,200 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,600 | 1,900 | 1,600 |
| 17,000 | 6,200 | 4,400 | 3,800 | 3,900 | 2,600 | 2,100 | 2,600 | 2,000 | 1,600 |
| 18,000 | 6,200 | 4,400 | 3,800 | 3,900 | 2,600 | 2,200 | 2,700 | 2,000 | 1,600 |
| 19,000 | 6,200 | 4,400 | 3,900 | 3,900 | 2,600 | 2,200 | 2,700 | 2,000 | 1,700 |
| 20,000 | 6,200 | 4,400 | 3,900 | 3,900 | 2,700 | 2,200 | 2,800 | 2,100 | 1,700 |
| 21,000 | 6,300 | 4,400 | 3,900 | 4,000 | 2,700 | 2,200 | 2,800 | 2,100 | 1,700 |
| 22,000 | 6,300 | 4,400 | 3,900 | 4,000 | 2,700 | 2,200 | 2,900 | 2,100 | 1,700 |
| 23,000 | 6,300 | 4,500 | 3,900 | 4,000 | 2,700 | 2,200 | 2,900 | 2,100 | 1,700 |
| 24,000 | 6,300 | 4,500 | 3,900 | 4,000 | 2,700 | 2,300 | 2,900 | 2,200 | 1,700 |
| 25,000 | 6,300 | 4,500 | 4,000 | 4,000 | 2,700 | 2,300 | 3,000 | 2,200 | 1,800 |
| 26,000 | 6,300 | 4,500 | 4,000 | 4,000 | 2,800 | 2,300 | 3,000 | 2,200 | 1,800 |
| 27,000 | 6,400 | 4,500 | 4,000 | 4,100 | 2,800 | 2,300 | 3,000 | 2,300 | 1,800 |
| 28,000 | 6,400 | 4,500 | 4,000 | 4,100 | 2,800 | 2,300 | 3,100 | 2,300 | 1,800 |
| 29,000 | 6,400 | 4,600 | 4,000 | 4,100 | 2,800 | 2,300 | 3,100 | 2,300 | 1,800 |
| 30,000 | 6,400 | 4,600 | 4,000 | 4,100 | 2,800 | 2,400 | 3,100 | 2,400 | 1,800 |

Figure 3.4d(2)

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 3.5 for special friendly troop orientations.

Troop Safety Distances—Meters
Long-Range Cannon

LOW Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 3,000 | 7,200 | 5,500 | 4,800 | 4,500 | 3,000 | 2,500 | 2,500 | 1,900 | 1,600 |
| 4,000 | 7,400 | 5,700 | 4,900 | 4,700 | 3,100 | 2,500 | 2,600 | 1,900 | 1,600 |
| 5,000 | 7,600 | 5,800 | 5,100 | 4,800 | 3,200 | 2,600 | 2,600 | 1,900 | 1,600 |
| 6,000 | 7,800 | 6,000 | 5,200 | 4,900 | 3,200 | 2,600 | 2,600 | 2,000 | 1,700 |
| 7,000 | 8,000 | 6,100 | 5,400 | 5,100 | 3,300 | 2,700 | 2,600 | 2,000 | 1,700 |
| 8,000 | 8,200 | 6,300 | 5,500 | 5,200 | 3,400 | 2,800 | 2,700 | 2,000 | 1,700 |
| 9,000 | 8,500 | 6,500 | 5,700 | 5,300 | 3,500 | 2,800 | 2,700 | 2,000 | 1,700 |
| 10,000 | 8,700 | 6,600 | 5,800 | 5,500 | 3,500 | 2,900 | 2,700 | 2,100 | 1,700 |
| 11,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 2,800 | 2,100 | 1,700 |
| 12,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 2,800 | 2,100 | 1,800 |
| 13,000 | 9,000 | 6,900 | 6,000 | 5,700 | 3,700 | 3,000 | 2,800 | 2,100 | 1,800 |
| 14,000 | 9,000 | 6,900 | 6,000 | 5,700 | 3,700 | 3,000 | 2,900 | 2,200 | 1,800 |
| 15,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 2,900 | 2,200 | 1,800 |
| 16,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 2,900 | 2,200 | 1,800 |
| 17,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,000 | 2,300 | 1,800 |
| 18,000 | 9,000 | 6,900 | 6,100 | 5,800 | 3,700 | 3,100 | 3,000 | 2,300 | 1,900 |
| 19,000 | 9,100 | 7,000 | 6,100 | 5,800 | 3,800 | 3,100 | 3,000 | 2,300 | 1,900 |
| 20,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,100 | 2,300 | 1,900 |
| 21,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,100 | 2,400 | 1,900 |
| 22,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,100 | 2,400 | 1,900 |
| 23,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,200 | 2,400 | 1,900 |
| 24,000 | 9,200 | 7,000 | 6,200 | 5,900 | 3,800 | 3,200 | 3,200 | 2,400 | 2,000 |
| 25,000 | 9,200 | 7,100 | 6,200 | 5,900 | 3,900 | 3,200 | 3,200 | 2,500 | 2,000 |
| 26,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,300 | 2,500 | 2,000 |
| 27,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,300 | 2,500 | 2,000 |
| 28,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,300 | 2,500 | 2,000 |
| 29,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,400 | 2,600 | 2,000 |
| 30,000 | 9,300 | 7,200 | 6,300 | 6,000 | 3,900 | 3,300 | 3,400 | 2,600 | 2,100 |

Figure 3.4e(1)

HIGH Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 3,000 | 8,800 | 6,700 | 5,800 | 5,500 | 3,500 | 2,800 | 2,800 | 2,100 | 1,600 |
| 4,000 | 8,800 | 6,700 | 5,900 | 5,500 | 3,500 | 2,800 | 2,900 | 2,100 | 1,600 |
| 5,000 | 8,800 | 6,700 | 5,900 | 5,500 | 3,500 | 2,800 | 2,900 | 2,100 | 1,600 |
| 6,000 | 8,800 | 6,700 | 5,900 | 5,500 | 3,500 | 2,800 | 2,900 | 2,100 | 1,600 |
| 7,000 | 8,800 | 6,700 | 5,900 | 5,600 | 3,500 | 2,800 | 3,000 | 2,200 | 1,600 |
| 8,000 | 8,900 | 6,800 | 5,900 | 5,600 | 3,500 | 2,900 | 3,000 | 2,200 | 1,600 |
| 9,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,000 | 2,200 | 1,700 |
| 10,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,100 | 2,300 | 1,700 |
| 11,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,100 | 2,300 | 1,700 |
| 12,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,200 | 2,300 | 1,700 |
| 13,000 | 9,000 | 6,800 | 6,000 | 5,700 | 3,600 | 2,900 | 3,200 | 2,300 | 1,700 |
| 14,000 | 9,000 | 6,900 | 6,000 | 5,700 | 3,600 | 3,000 | 3,200 | 2,400 | 1,700 |
| 15,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,300 | 2,400 | 1,800 |
| 16,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,300 | 2,400 | 1,800 |
| 17,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,300 | 2,500 | 1,800 |
| 18,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,400 | 2,500 | 1,800 |
| 19,000 | 9,100 | 7,000 | 6,100 | 5,800 | 3,700 | 3,000 | 3,400 | 2,500 | 1,800 |
| 20,000 | 9,100 | 7,000 | 6,100 | 5,800 | 3,800 | 3,100 | 3,500 | 2,500 | 1,800 |
| 21,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,500 | 2,600 | 1,800 |
| 22,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,500 | 2,600 | 1,800 |
| 23,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,600 | 2,600 | 1,800 |
| 24,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,600 | 2,700 | 1,900 |
| 25,000 | 9,200 | 7,100 | 6,200 | 5,900 | 3,800 | 3,100 | 3,600 | 2,700 | 1,900 |
| 26,000 | 9,200 | 7,100 | 6,200 | 5,900 | 3,900 | 3,200 | 3,600 | 2,700 | 1,900 |
| 27,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,600 | 2,800 | 2,000 |
| 28,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,600 | 2,800 | 2,000 |
| 29,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,600 | 2,800 | 2,000 |
| 30,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,800 | 2,900 | 2,000 |

Figure 3.4e(2)

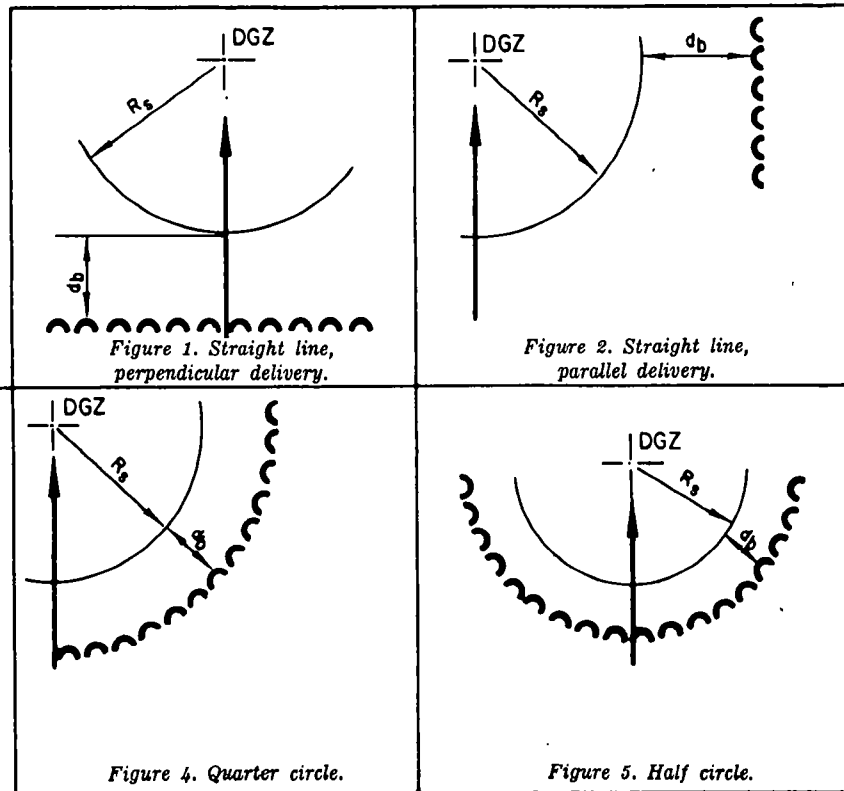
NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 3.5 for special friendly troop orientations.

SUPPLEMENTARY TROOP SAFETY Tables Long-Range Cannon—All Yields

The troop safety distances in figures 3.4a(1) through 3.4e(2) are based on the friendly troop orientation shown in figure 1, below. The elliptical delivery pattern of the long-range cannon may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

Special Troop Safety Orientations

LEGEND
 DGZ - Desired ground zero.
 R_s - Safety radius
 d_b - Buffer distance.
 ~~~~~ - Friendly troops.  
 → - Direction of fire.



When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figures 3.4a(1) through 3.4e(2) must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options—All Yields |                                               |                                          |                              |                           |                   |                                               |                                          |                              |                           |
|----------------------------------------|-----------------------------------------------|------------------------------------------|------------------------------|---------------------------|-------------------|-----------------------------------------------|------------------------------------------|------------------------------|---------------------------|
| Range<br>(meters)                      | Straight-line<br>parallel delivery<br>(Fig 2) | Straight-line<br>45° delivery<br>(Fig 3) | Quarter<br>circle<br>(Fig 4) | Half<br>circle<br>(Fig 5) | Range<br>(meters) | Straight-line<br>parallel delivery<br>(Fig 2) | Straight-line<br>45° delivery<br>(Fig 3) | Quarter<br>circle<br>(Fig 4) | Half<br>circle<br>(Fig 5) |
| 3,000                                  | 0                                             | 0                                        | +100                         | +100                      | 20,000            | -100                                          | 0                                        | +100                         | +100                      |
| 4,000                                  | 0                                             | 0                                        | +100                         | +100                      | 21,000            | -100                                          | 0                                        | +100                         | +100                      |
| 5,000                                  | 0                                             | 0                                        | +100                         | +100                      | 22,000            | -100                                          | 0                                        | +100                         | +100                      |
| 6,000                                  | 0                                             | 0                                        | +100                         | +100                      | 23,000            | -200                                          | 0                                        | +100                         | +100                      |
| 7,000                                  | 0                                             | 0                                        | +100                         | +100                      | 24,000            | -200                                          | 0                                        | +100                         | +100                      |
| 8,000                                  | 0                                             | 0                                        | +100                         | +100                      | 25,000            | -200                                          | -100                                     | +100                         | +100                      |
| 9,000                                  | 0                                             | 0                                        | +100                         | +100                      | 26,000            | -200                                          | -100                                     | +100                         | +100                      |
| 10,000                                 | 0                                             | 0                                        | +100                         | +100                      | 27,000            | -200                                          | -100                                     | +100                         | +100                      |
| 11,000                                 | 0                                             | 0                                        | +100                         | +100                      | 28,000            | -200                                          | -100                                     | +100                         | +100                      |
| 12,000                                 | -100                                          | 0                                        | +100                         | +100                      | 29,000            | -200                                          | -100                                     | +100                         | +100                      |
| 13,000                                 | -100                                          | 0                                        | +100                         | +100                      | 30,000            | -200                                          | -100                                     | +100                         | +100                      |
| 14,000                                 | -100                                          | 0                                        | +100                         | +100                      |                   |                                               |                                          |                              |                           |
| 15,000                                 | -100                                          | 0                                        | +100                         | +100                      |                   |                                               |                                          |                              |                           |
| 16,000                                 | -100                                          | 0                                        | +100                         | +100                      |                   |                                               |                                          |                              |                           |
| 17,000                                 | -100                                          | 0                                        | +100                         | +100                      |                   |                                               |                                          |                              |                           |
| 18,000                                 | -100                                          | 0                                        | +100                         | +100                      |                   |                                               |                                          |                              |                           |
| 19,000                                 | -100                                          | 0                                        | +100                         | +100                      |                   |                                               |                                          |                              |                           |

Figure 3.5.

CASUALTY and DAMAGE Tables  
Long-Range Cannon

All figures in meters

| 1   | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22   |
|-----|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|------|
| HOB | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |      |
|     |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |      |
|     | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer |
| 900 |                   | 0       |                     |         |                    |         |                                 |         |                                   |         |                          |         | 1,975             | 1,300 | 950   | 1,525           | 1,200 | 950   | 1,125             | 800   | 325  |
| 875 |                   | 175     |                     |         |                    |         |                                 |         |                                   |         |                          | 0       | 1,975             | 1,300 | 950   | 1,525           | 1,200 | 950   | 1,150             | 825   | 400  |
| 850 |                   | 275     |                     |         |                    | 0       |                                 |         |                                   |         |                          | 175     | 2,000             | 1,325 | 975   | 1,550           | 1,225 | 975   | 1,150             | 850   | 450  |
| 825 |                   | 350     |                     |         |                    | 175     |                                 |         |                                   | 0       |                          | 275     | 2,000             | 1,350 | 1,000 | 1,550           | 1,250 | 1,000 | 1,175             | 875   | 500  |
| 800 |                   | 400     |                     |         |                    | 250     |                                 |         |                                   | 100     |                          | 350     | 2,025             | 1,350 | 1,025 | 1,575           | 1,275 | 1,025 | 1,200             | 900   | 525  |
| 775 |                   | 450     |                     |         |                    | 325     |                                 |         |                                   | 225     |                          | 400     | 2,025             | 1,375 | 1,050 | 1,575           | 1,275 | 1,050 | 1,225             | 925   | 575  |
| 750 |                   | 475     |                     |         |                    | 375     |                                 |         |                                   | 300     |                          | 450     | 2,025             | 1,400 | 1,075 | 1,600           | 1,300 | 1,075 | 1,225             | 950   | 600  |
| 725 |                   | 525     |                     |         |                    | 425     |                                 |         |                                   | 350     |                          | 475     | 2,050             | 1,400 | 1,075 | 1,600           | 1,300 | 1,075 | 1,250             | 975   | 625  |
| 700 |                   | 550     |                     | 0       |                    | 475     |                                 |         |                                   | 400     |                          | 525     | 2,050             | 1,400 | 1,100 | 1,625           | 1,325 | 1,100 | 1,250             | 1,000 | 650  |
| 675 |                   | 575     |                     | 125     |                    | 500     |                                 |         |                                   | 450     | 0                        | 550     | 2,050             | 1,425 | 1,100 | 1,625           | 1,325 | 1,100 | 1,275             | 1,000 | 675  |
| 650 |                   | 600     |                     | 225     |                    | 525     |                                 |         |                                   | 475     | 300                      | 575     | 2,075             | 1,425 | 1,125 | 1,650           | 1,350 | 1,125 | 1,275             | 1,025 | 700  |
| 625 | 0                 | 625     |                     | 275     | 0                  | 550     |                                 |         |                                   | 500     | 375                      | 600     | 2,075             | 1,450 | 1,150 | 1,650           | 1,350 | 1,150 | 1,300             | 1,050 | 725  |
| 600 | 150               | 650     |                     | 325     | 150                | 600     |                                 |         | 0                                 | 525     | 450                      | 625     | 2,075             | 1,450 | 1,150 | 1,650           | 1,375 | 1,150 | 1,300             | 1,050 | 750  |
| 575 | 250               | 675     |                     | 375     | 225                | 625     |                                 |         | 150                               | 550     | 525                      | 650     | 2,100             | 1,475 | 1,175 | 1,675           | 1,375 | 1,175 | 1,325             | 1,075 | 775  |
| 550 | 300               | 700     |                     | 400     | 275                | 625     |                                 | 0       | 225                               | 575     | 600                      | 675     | 2,100             | 1,475 | 1,175 | 1,675           | 1,400 | 1,175 | 1,325             | 1,075 | 800  |
| 525 | 325               | 725     |                     | 450     | 325                | 650     |                                 | 100     | 275                               | 600     | 750                      | 750     | 2,100             | 1,500 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,100 | 800  |
| 500 | 375               | 725     |                     | 475     | 375                | 675     |                                 | 200     | 325                               | 625     | 900                      | 900     | 2,100             | 1,500 | 1,200 | 1,700           | 1,400 | 1,200 | 1,350             | 1,100 | 825  |
| 475 | 400               | 750     | 0                   | 500     | 400                | 700     |                                 | 250     | 350                               | 650     | 1,075                    | 1,075   | 2,125             | 1,500 | 1,200 | 1,700           | 1,425 | 1,200 | 1,350             | 1,125 | 825  |
| 450 | 425               | 775     | 125                 | 525     | 425                | 700     |                                 | 275     | 400                               | 675     | 1,175                    | 1,175   | 2,125             | 1,500 | 1,225 | 1,700           | 1,425 | 1,225 | 1,375             | 1,125 | 850  |
| 425 | 450               | 775     | 200                 | 550     | 450                | 725     |                                 | 325     | 425                               | 675     | 1,175                    | 1,175   | 2,125             | 1,525 | 1,225 | 1,700           | 1,425 | 1,225 | 1,375             | 1,125 | 850  |
| 400 | 475               | 800     | 250                 | 550     | 475                | 750     |                                 | 350     | 450                               | 700     | 1,200                    | 1,200   | 2,125             | 1,525 | 1,250 | 1,725           | 1,450 | 1,250 | 1,375             | 1,150 | 875  |
| 375 | 500               | 800     | 275                 | 575     | 500                | 750     | 0                               | 375     | 625                               | 700     | 1,200                    | 1,200   | 2,150             | 1,525 | 1,250 | 1,725           | 1,450 | 1,250 | 1,400             | 1,150 | 875  |
| 350 | 525               | 825     | 300                 | 600     | 500                | 775     | 100                             | 400     | 675                               | 725     | 1,175                    | 1,175   | 2,150             | 1,525 | 1,250 | 1,725           | 1,450 | 1,250 | 1,400             | 1,150 | 900  |
| 325 | 525               | 825     | 325                 | 600     | 525                | 775     | 175                             | 425     | 675                               | 725     | 1,175                    | 1,175   | 2,150             | 1,550 | 1,250 | 1,725           | 1,450 | 1,250 | 1,400             | 1,175 | 900  |
| 300 | 550               | 825     | 350                 | 625     | 550                | 775     | 200                             | 450     | 675                               | 750     | 1,125                    | 1,125   | 2,150             | 1,550 | 1,275 | 1,725           | 1,475 | 1,275 | 1,400             | 1,175 | 900  |
| 275 | 550               | 850     | 375                 | 625     | 550                | 800     | 250                             | 450     | 675                               | 750     | 1,100                    | 1,100   | 2,150             | 1,550 | 1,275 | 1,750           | 1,475 | 1,275 | 1,425             | 1,175 | 925  |
| 250 | 575               | 850     | 400                 | 625     | 575                | 800     | 275                             | 475     | 650                               | 750     | 1,050                    | 1,050   | 2,150             | 1,550 | 1,275 | 1,750           | 1,475 | 1,275 | 1,425             | 1,175 | 925  |
| 225 | 575               | 850     | 400                 | 650     | 575                | 800     | 300                             | 475     | 650                               | 775     | 1,025                    | 1,025   | 2,150             | 1,550 | 1,275 | 1,750           | 1,475 | 1,275 | 1,425             | 1,200 | 925  |
| 200 | 575               | 875     | 425                 | 650     | 600                | 825     | 300                             | 500     | 625                               | 775     | 975                      | 975     | 2,150             | 1,550 | 1,275 | 1,750           | 1,475 | 1,275 | 1,425             | 1,200 | 950  |
| 175 | 600               | 875     | 425                 | 675     | 600                | 825     | 325                             | 500     | 600                               | 775     | 950                      | 950     | 2,175             | 1,575 | 1,300 | 1,750           | 1,475 | 1,300 | 1,425             | 1,200 | 950  |
| 150 | 600               | 875     | 450                 | 675     | 600                | 825     | 325                             | 525     | 575                               | 800     | 925                      | 925     | 2,175             | 1,575 | 1,300 | 1,750           | 1,500 | 1,300 | 1,425             | 1,200 | 950  |
| 125 | 600               | 875     | 450                 | 675     | 600                | 825     | 350                             | 525     | 575                               | 800     | 900                      | 900     | 2,175             | 1,575 | 1,300 | 1,750           | 1,500 | 1,300 | 1,425             | 1,200 | 950  |
| 100 | 600               | 875     | 450                 | 675     | 625                | 825     | 350                             | 525     | 575                               | 800     | 850                      | 850     | 2,175             | 1,575 | 1,300 | 1,750           | 1,500 | 1,300 | 1,425             | 1,200 | 950  |
| 75  | 625               | 875     | 450                 | 675     | 625                | 850     | 350                             | 525     | 600                               | 800     | 825                      | 875     | 2,175             | 1,575 | 1,300 | 1,750           | 1,500 | 1,300 | 1,450             | 1,200 | 950  |
| 50  | 625               | 900     | 450                 | 675     | 625                | 850     | 350                             | 525     | 600                               | 800     | 800                      | 875     | 2,025             | 1,550 | 1,300 | 1,750           | 1,500 | 1,300 | 1,450             | 1,200 | 950  |
| 25  | 625               | 900     | 475                 | 675     | 625                | 850     | 375                             | 525     | 600                               | 800     | 775                      | 875     | 1,900             | 1,525 | 1,300 | 1,750           | 1,500 | 1,300 | 1,450             | 1,200 | 950  |
| 0   | 625               | 900     | 475                 | 675     | 625                | 850     | 375                             | 525     | 600                               | 800     | 775                      | 875     | 1,750             | 1,500 | 1,300 | 1,750           | 1,500 | 1,300 | 1,450             | 1,200 | 950  |

HOB<sub>fa</sub> = 38 m

Low HOB<sub>min</sub> = 67 m

High HOB<sub>min</sub> = 152 m

HOB<sub>99</sub> = HOB<sub>fa</sub> + 3.5 PE<sub>b</sub> m

HOB<sub>98</sub> = HOB<sub>fa</sub> + 3.0 PE<sub>b</sub> m

HOB<sub>90</sub> = HOB<sub>fa</sub> + 1.9 PE<sub>b</sub> m

Figure 3.6a.

# CASUALTY and DAMAGE Tables Long-Range Cannon

CHARLIE/2 KT

All figures in meters

| 23  | 24                                | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-----|-----------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod<br>dam<br>wheeled<br>vehicles | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|     |                                   |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|     |                                   |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 900 |                                   |                                  |                              |                                              |                                        |                                | 550             |                              |                              | 2,075                      |                          |            | 0-5         |            |                 |            | 0-500       |            |
| 875 |                                   |                                  |                              |                                              |                                        |                                | 575             |                              |                              | 2,100                      |                          |            | 0-10        |            |                 |            | 0-600       |            |
| 850 |                                   |                                  |                              |                                              |                                        |                                | 625             |                              |                              | 2,100                      |                          |            | 0-10        |            |                 |            | 0-650       |            |
| 825 |                                   |                                  |                              |                                              |                                        |                                | 650             |                              |                              | 2,100                      |                          |            | 0-10        |            |                 |            | 0-700       |            |
| 800 |                                   |                                  |                              |                                              |                                        |                                | 675             |                              |                              | 2,100                      |                          |            | 0-10        |            |                 |            | 0-700       |            |
| 775 |                                   |                                  |                              |                                              |                                        |                                | 700             |                              |                              | 2,125                      |                          |            | 0-15        |            |                 |            | 0-750       |            |
| 750 |                                   |                                  |                              |                                              |                                        |                                | 725             |                              |                              | 2,125                      |                          |            | 0-15        |            |                 |            | 0-750       |            |
| 725 |                                   |                                  |                              |                                              |                                        |                                | 750             |                              |                              | 2,125                      |                          | 0          | 0-20        |            |                 | 0          | 0-800       |            |
| 700 |                                   |                                  |                              |                                              |                                        |                                | 775             |                              |                              | 2,125                      |                          | 0-5        | 0-20        |            |                 | 0-50       | 0-800       |            |
| 675 |                                   |                                  |                              |                                              |                                        |                                | 800             |                              |                              | 2,150                      |                          | 0-5        | 0-25        |            |                 | 0-200      | 0-850       |            |
| 650 |                                   |                                  |                              |                                              |                                        |                                | 825             |                              |                              | 2,150                      |                          | 0-5        | 0-35        |            |                 | 0-300      | 0-850       |            |
| 625 |                                   |                                  |                              |                                              |                                        |                                | 850             |                              |                              | 2,150                      |                          | 0-5        | 0-40        |            |                 | 0-350      | 0-850       |            |
| 600 |                                   |                                  |                              |                                              |                                        |                                | 850             |                              |                              | 2,150                      |                          | 0-5        | 5-50        |            |                 | 0-400      | 50-900      |            |
| 575 |                                   |                                  |                              |                                              |                                        |                                | 875             |                              |                              | 2,150                      |                          | 0-5        | 5-60        |            |                 | 0-400      | 200-900     |            |
| 550 |                                   |                                  |                              |                                              |                                        |                                | 900             |                              |                              | 2,150                      |                          | 0-10       | 5-75        |            |                 | 0-450      | 250-900     |            |
| 525 |                                   |                                  |                              |                                              |                                        |                                | 900             |                              |                              | 2,125                      | 0                        | 0-10       | 5-100       |            | 0               | 0-450      | 300-950     |            |
| 500 |                                   |                                  |                              |                                              |                                        |                                | 925             |                              |                              | 2,125                      | 0-5                      | 0-10       | 5-120       |            | 0-50            | 0-500      | 350-950     |            |
| 475 |                                   |                                  |                              |                                              |                                        |                                | 925             | 0                            |                              | 2,125                      | 0-5                      | 0-15       | 10-180      |            | 0-150           | 0-550      | 400-950     |            |
| 450 |                                   |                                  |                              |                                              |                                        |                                | 950             | 150                          |                              | 2,100                      | 0-5                      | 0-20       | 10-230      |            | 0-250           | 0-550      | 400-1,000   |            |
| 425 |                                   |                                  |                              |                                              |                                        |                                | 950             | 200                          |                              | 2,100                      | 0-5                      | 0-25       | 15-300      |            | 0-300           | 0-600      | 450-1,000   |            |
| 400 |                                   |                                  |                              |                                              |                                        |                                | 975             | 250                          |                              | 2,075                      | 0-5                      | 0-35       | 20-400      |            | 0-300           | 0-600      | 450-1,000   |            |
| 375 |                                   |                                  |                              | 0                                            |                                        |                                | 975             | 300                          |                              | 2,075                      | 0-5                      | 0-50       | 20-520      |            | 0-350           | 0-600      | 500-1,000   |            |
| 350 |                                   |                                  |                              | 25                                           |                                        |                                | 1,000           | 325                          |                              | 2,050                      | 0-10                     | 5-60       | 25-640      |            | 0-400           | 50-650     | 500-1,000   |            |
| 325 |                                   |                                  |                              | 75                                           |                                        |                                | 1,000           | 350                          |                              | 2,025                      | 0-10                     | 5-70       | 35-800      |            | 0-400           | 150-650    | 500-1,000   |            |
| 300 | 0                                 |                                  |                              | 125                                          |                                        |                                | 1,000           | 375                          |                              | 2,025                      | 0-10                     | 5-80       | 40-940      |            | 0-400           | 200-650    | 550-1,050   |            |
| 275 | 25                                |                                  |                              | 175                                          |                                        | 0                              | 1,025           | 375                          | 0                            | 2,000                      | 0-15                     | 5-100      | 50-1,140    |            | 0-450           | 250-650    | 550-1,050   |            |
| 250 | 100                               |                                  | 0                            | 200                                          |                                        | 250                            | 1,025           | 400                          | 50                           | 1,975                      | 0-15                     | 5-110      | 60-1,320    |            | 0-450           | 250-700    | 550-1,050   |            |
| 225 | 150                               | 0                                | 25                           | 250                                          |                                        | 300                            | 1,025           | 425                          | 125                          | 1,950                      | 0-15                     | 10-130     | 70-1,560    |            | 0-450           | 300-700    | 600-1,050   |            |
| 200 | 250                               | 25                               | 75                           | 250                                          |                                        | 325                            | 1,025           | 425                          | 150                          | 1,925                      | 0-20                     | 10-180     | 90-2,160    |            | 0-500           | 300-700    | 600-1,050   |            |
| 175 | 275                               | 50                               | 100                          | 275                                          |                                        | 325                            | 1,025           | 450                          | 175                          | 1,900                      | 0-25                     | 10-220     | 110-2,700   |            | 0-500           | 350-700    | 600-1,050   |            |
| 150 | 300                               | 100                              | 125                          | 300                                          |                                        | 350                            | 1,050           | 450                          | 200                          | 1,875                      | 0-35                     | 15-280     | 140-3,400   |            | 0-500           | 350-700    | 600-1,050   |            |
| 125 | 325                               | 125                              | 150                          | 300                                          | 0                                      | 350                            | 1,050           | 450                          | 225                          | 1,850                      | 0-40                     | 15-370     | 180-4,500   |            | 0-500           | 350-700    | 600-1,050   |            |
| 100 | 350                               | 175                              | 175                          | 325                                          | 275                                    | 350                            | 1,050           | 475                          | 225                          | 1,825                      | 5-50                     | 20-450     | 220-5,400   |            | 50-500          | 350-700    | 600-1,050   |            |
| 75  | 350                               | 200                              | 175                          | 325                                          | 300                                    | 375                            | 1,050           | 475                          | 250                          | 1,775                      | 5-70                     | 25-580     | 280-7,000   | 0          | 100-500         | 350-700    | 600-1,050   | 0          |
| 50  | 350                               | 200                              | 200                          | 325                                          | 300                                    | 375                            | 925             | 425                          | 225                          | 1,750                      | 5-80                     | 30-700     | 340-8,400   | 0-5        | 100-500         | 350-700    | 600-1,050   | 0-50       |
| 25  | 300                               | 200                              | 175                          | 325                                          | 275                                    | 350                            | 775             | 350                          | 200                          | 1,725                      | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |
| 0   | 225                               | 150                              | 125                          | 275                                          | 250                                    | 300                            | 625             | 300                          | 150                          | 1,675                      |                          |            |             |            |                 |            |             |            |

Figure 3.6a continued.

<sup>1</sup>Long-Range Cannon.

CASUALTY and DAMAGE Tables  
Long-Range Cannon

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,050 |                   | 0       |                     |         |                    |         |                                 |         |                                   |         |                          |         | 3,025             | 2,150 | 1,700 | 1,750           | 1,350 | 875   | 1,225             | 875   | 350   |
| 1,025 |                   | 225     |                     |         |                    |         |                                 |         |                                   |         |                          | 0       | 3,025             | 2,150 | 1,700 | 1,750           | 1,350 | 900   | 1,250             | 900   | 425   |
| 1,000 |                   | 325     |                     |         |                    | 0       |                                 |         |                                   |         |                          | 175     | 3,025             | 2,150 | 1,725 | 1,775           | 1,375 | 925   | 1,275             | 925   | 475   |
| 975   |                   | 400     |                     |         |                    | 150     |                                 |         |                                   |         | 275                      | 3,025   | 2,175             | 1,750 | 1,775 | 1,400           | 950   | 1,300 | 950               | 525   |       |
| 950   |                   | 450     |                     |         |                    | 250     |                                 |         |                                   | 0       | 350                      | 3,050   | 2,175             | 1,750 | 1,800 | 1,400           | 1,000 | 1,300 | 975               | 575   |       |
| 925   |                   | 500     |                     |         |                    | 350     |                                 |         |                                   | 200     | 425                      | 3,050   | 2,200             | 1,775 | 1,800 | 1,425           | 1,000 | 1,325 | 1,000             | 600   |       |
| 900   |                   | 550     |                     |         |                    | 400     |                                 |         |                                   | 300     | 0                        | 475     | 3,050             | 2,200 | 1,775 | 1,825           | 1,450 | 1,025 | 1,350             | 1,025 | 650   |
| 875   |                   | 575     |                     |         |                    | 450     |                                 |         |                                   | 350     | 650                      | 3,075   | 2,225             | 1,800 | 1,825 | 1,450           | 1,050 | 1,350 | 1,050             | 675   |       |
| 850   |                   | 625     |                     |         |                    | 500     |                                 |         |                                   | 400     | 750                      | 3,075   | 2,225             | 1,800 | 1,850 | 1,475           | 1,075 | 1,375 | 1,075             | 700   |       |
| 825   |                   | 650     |                     | 0       |                    | 550     |                                 |         |                                   | 450     | 850                      | 3,075   | 2,225             | 1,800 | 1,850 | 1,500           | 1,100 | 1,400 | 1,075             | 725   |       |
| 800   | 0                 | 675     |                     | 200     |                    | 575     |                                 |         |                                   | 500     | 925                      | 925     | 3,100             | 2,250 | 1,825 | 1,875           | 1,500 | 1,100 | 1,400             | 1,100 | 750   |
| 775   | 175               | 700     |                     | 275     |                    | 600     |                                 |         |                                   | 550     | 975                      | 975     | 3,100             | 2,250 | 1,825 | 1,875           | 1,525 | 1,125 | 1,425             | 1,125 | 800   |
| 750   | 275               | 725     |                     | 350     | 0                  | 650     |                                 |         |                                   | 775     | 1,050                    | 1,050   | 3,100             | 2,275 | 1,850 | 1,900           | 1,525 | 1,150 | 1,425             | 1,150 | 800   |
| 725   | 325               | 750     |                     | 400     | 175                | 675     |                                 |         | 0                                 | 600     | 1,150                    | 1,150   | 3,100             | 2,275 | 1,850 | 1,900           | 1,550 | 1,150 | 1,450             | 1,150 | 825   |
| 700   | 375               | 775     |                     | 425     | 250                | 700     |                                 |         | 150                               | 625     | 1,300                    | 1,300   | 3,125             | 2,275 | 1,875 | 1,900           | 1,550 | 1,175 | 1,700             | 1,175 | 850   |
| 675   | 425               | 800     |                     | 475     | 300                | 725     |                                 |         | 225                               | 650     | 1,500                    | 1,500   | 3,125             | 2,275 | 1,875 | 1,925           | 1,550 | 1,200 | 1,725             | 1,175 | 875   |
| 650   | 450               | 825     |                     | 500     | 350                | 750     |                                 | 0       | 300                               | 675     | 1,600                    | 1,600   | 3,125             | 2,300 | 1,875 | 1,925           | 1,575 | 1,200 | 1,725             | 1,200 | 900   |
| 625   | 500               | 850     | 0                   | 525     | 400                | 750     |                                 | 175     | 350                               | 700     | 1,625                    | 1,625   | 3,125             | 2,300 | 1,900 | 1,925           | 1,575 | 1,225 | 1,725             | 1,200 | 925   |
| 600   | 525               | 850     | 150                 | 550     | 450                | 775     |                                 | 250     | 375                               | 725     | 1,650                    | 1,650   | 3,125             | 2,300 | 1,900 | 1,950           | 1,600 | 1,225 | 1,725             | 1,225 | 925   |
| 575   | 550               | 875     | 225                 | 575     | 475                | 800     |                                 | 300     | 425                               | 750     | 1,650                    | 1,650   | 3,150             | 2,300 | 1,900 | 1,950           | 1,600 | 1,250 | 1,725             | 1,225 | 950   |
| 550   | 575               | 900     | 300                 | 600     | 500                | 825     |                                 | 350     | 450                               | 775     | 1,625                    | 1,625   | 3,150             | 2,325 | 1,900 | 1,950           | 1,600 | 1,250 | 1,750             | 1,250 | 950   |
| 525   | 600               | 900     | 325                 | 625     | 525                | 825     |                                 | 375     | 525                               | 775     | 1,625                    | 1,625   | 3,150             | 2,325 | 1,925 | 1,950           | 1,625 | 1,275 | 1,725             | 1,250 | 975   |
| 500   | 625               | 925     | 375                 | 650     | 550                | 850     |                                 | 425     | 525                               | 825     | 1,600                    | 1,600   | 3,150             | 2,325 | 1,925 | 1,975           | 1,625 | 1,275 | 1,700             | 1,275 | 975   |
| 475   | 650               | 925     | 400                 | 675     | 575                | 875     | 0                               | 450     | 525                               | 875     | 1,550                    | 1,550   | 3,150             | 2,325 | 1,925 | 1,975           | 1,625 | 1,275 | 1,675             | 1,275 | 1,000 |
| 450   | 650               | 950     | 425                 | 700     | 600                | 875     | 100                             | 475     | 525                               | 925     | 1,525                    | 1,525   | 3,150             | 2,350 | 1,950 | 1,975           | 1,650 | 1,300 | 1,650             | 1,300 | 1,000 |
| 425   | 675               | 950     | 450                 | 700     | 600                | 875     | 175                             | 500     | 525                               | 925     | 1,475                    | 1,475   | 3,175             | 2,350 | 1,950 | 2,000           | 1,650 | 1,300 | 1,625             | 1,300 | 1,025 |
| 400   | 700               | 975     | 475                 | 725     | 625                | 900     | 225                             | 525     | 525                               | 925     | 1,450                    | 1,450   | 3,175             | 2,350 | 1,950 | 2,000           | 1,650 | 1,300 | 1,600             | 1,300 | 1,025 |
| 375   | 700               | 975     | 500                 | 725     | 650                | 900     | 275                             | 525     | 525                               | 925     | 1,425                    | 1,425   | 3,175             | 2,350 | 1,950 | 2,000           | 1,650 | 1,325 | 1,575             | 1,300 | 1,050 |
| 350   | 725               | 975     | 500                 | 750     | 650                | 925     | 300                             | 550     | 525                               | 900     | 1,400                    | 1,400   | 3,175             | 2,350 | 1,950 | 2,000           | 1,675 | 1,325 | 1,575             | 1,325 | 1,050 |
| 325   | 725               | 1,000   | 525                 | 750     | 675                | 925     | 325                             | 575     | 525                               | 875     | 1,375                    | 1,375   | 3,175             | 2,350 | 1,975 | 2,000           | 1,675 | 1,325 | 1,575             | 1,325 | 1,050 |
| 300   | 750               | 1,000   | 550                 | 775     | 675                | 950     | 350                             | 575     | 525                               | 850     | 1,350                    | 1,350   | 3,175             | 2,350 | 1,975 | 2,000           | 1,675 | 1,350 | 1,600             | 1,325 | 1,075 |
| 275   | 750               | 1,000   | 550                 | 775     | 700                | 950     | 375                             | 600     | 525                               | 850     | 1,300                    | 1,300   | 3,175             | 2,375 | 1,975 | 2,025           | 1,675 | 1,350 | 1,600             | 1,325 | 1,075 |
| 250   | 750               | 1,025   | 575                 | 775     | 700                | 950     | 400                             | 600     | 525                               | 850     | 1,275                    | 1,275   | 3,175             | 2,375 | 1,975 | 2,025           | 1,675 | 1,350 | 1,600             | 1,350 | 1,075 |
| 225   | 775               | 1,025   | 575                 | 800     | 700                | 950     | 400                             | 600     | 525                               | 850     | 1,250                    | 1,250   | 3,175             | 2,375 | 1,975 | 2,025           | 1,700 | 1,350 | 1,600             | 1,350 | 1,075 |
| 200   | 775               | 1,025   | 600                 | 800     | 725                | 975     | 425                             | 625     | 525                               | 850     | 1,225                    | 1,225   | 3,175             | 2,375 | 1,975 | 2,025           | 1,700 | 1,350 | 1,600             | 1,350 | 1,100 |
| 175   | 775               | 1,025   | 600                 | 800     | 725                | 975     | 425                             | 625     | 525                               | 850     | 1,200                    | 1,200   | 3,200             | 2,375 | 1,975 | 2,025           | 1,700 | 1,350 | 1,600             | 1,350 | 1,100 |
| 150   | 775               | 1,025   | 600                 | 800     | 725                | 975     | 425                             | 625     | 525                               | 850     | 1,175                    | 1,175   | 3,200             | 2,375 | 2,000 | 2,025           | 1,700 | 1,350 | 1,600             | 1,350 | 1,100 |
| 125   | 775               | 1,050   | 600                 | 800     | 725                | 975     | 450                             | 650     | 525                               | 850     | 1,150                    | 1,150   | 3,200             | 2,375 | 2,000 | 2,025           | 1,700 | 1,375 | 1,625             | 1,350 | 1,100 |
| 100   | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 525                               | 850     | 1,125                    | 1,125   | 3,150             | 2,375 | 1,950 | 2,025           | 1,700 | 1,375 | 1,625             | 1,350 | 1,100 |
| 75    | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 525                               | 850     | 1,125                    | 1,125   | 2,800             | 2,200 | 1,800 | 2,025           | 1,700 | 1,375 | 1,625             | 1,350 | 1,100 |
| 50    | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 525                               | 850     | 1,075                    | 1,075   | 2,550             | 2,025 | 1,650 | 2,025           | 1,700 | 1,375 | 1,625             | 1,375 | 1,100 |
| 25    | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 525                               | 850     | 1,075                    | 1,075   | 2,275             | 1,850 | 1,525 | 2,025           | 1,700 | 1,375 | 1,625             | 1,375 | 1,100 |
| 0     | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 525                               | 850     | 1,050                    | 1,050   | 2,125             | 1,700 | 1,375 | 2,025           | 1,700 | 1,375 | 1,625             | 1,375 | 1,100 |

HOB<sub>18</sub> = 52 mLow HOB<sub>min</sub> = 91 mHigh HOB<sub>min</sub> = 206 mHOB<sub>99</sub> = HOB<sub>18</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>18</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>18</sub> + 1.9 PE<sub>h</sub> m

Figure 3.6b.



**CASUALTY and DAMAGE Tables**  
**Long-Range. Cannon**

**DELTA/5 KT**

*All figures in meters*

| 23    | 24                            | 25                               | 26                            | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|-------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>depts | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d Degree Burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|       |                               |                                  |                               |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                               |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 1,050 |                               |                                  |                               |                                              |                                        |                                | 1,175           |                              |                              | 2,875                      |                          |            | 0-5         |            |                 |            | 0-500       |            |
| 1,025 |                               |                                  |                               |                                              |                                        |                                | 1,200           |                              |                              | 2,875                      |                          |            | 0-5         |            |                 |            | 0-550       |            |
| 1,000 |                               |                                  |                               |                                              |                                        |                                | 1,225           |                              |                              | 2,875                      |                          |            | 0-10        |            |                 |            | 0-600       |            |
| 975   |                               |                                  |                               |                                              |                                        |                                | 1,225           |                              |                              | 2,900                      |                          |            | 0-10        |            |                 |            | 0-600       |            |
| 950   |                               |                                  |                               |                                              |                                        |                                | 1,250           |                              |                              | 2,900                      |                          |            | 0-10        |            |                 |            | 0-650       |            |
| 925   |                               |                                  |                               |                                              |                                        |                                | 1,275           |                              |                              | 2,900                      |                          |            | 0-10        |            |                 |            | 0-700       |            |
| 900   |                               |                                  |                               |                                              |                                        |                                | 1,300           |                              |                              | 2,900                      |                          |            | 0-15        |            |                 |            | 0-750       |            |
| 875   |                               |                                  |                               |                                              |                                        |                                | 1,300           |                              |                              | 2,925                      |                          |            | 0-15        |            |                 |            | 0-750       |            |
| 850   |                               |                                  |                               |                                              |                                        |                                | 1,325           |                              |                              | 2,925                      |                          |            | 0-20        |            |                 |            | 0-800       |            |
| 825   |                               |                                  |                               |                                              |                                        |                                | 1,350           |                              |                              | 2,925                      |                          | 0          | 0-20        |            |                 | 0          | 0-800       |            |
| 800   |                               |                                  |                               |                                              |                                        |                                | 1,350           |                              |                              | 2,925                      |                          | 0-5        | 0-25        |            |                 | 0-50       | 0-850       |            |
| 775   |                               |                                  |                               |                                              |                                        |                                | 1,375           |                              |                              | 2,900                      |                          | 0-5        | 0-30        |            |                 | 0-200      | 0-850       |            |
| 750   |                               |                                  |                               |                                              |                                        |                                | 1,375           | 0                            |                              | 2,900                      |                          | 0-5        | 0-35        |            |                 | 0-300      | 0-900       |            |
| 725   |                               |                                  |                               |                                              |                                        |                                | 1,400           | 75                           |                              | 2,900                      |                          | 0-5        | 0-45        |            |                 | 0-350      | 0-900       |            |
| 700   |                               |                                  |                               |                                              |                                        |                                | 1,400           | 200                          |                              | 2,900                      |                          | 0-5        | 5-50        |            |                 | 0-400      | 50-950      |            |
| 675   |                               |                                  |                               |                                              |                                        |                                | 1,425           | 275                          |                              | 2,875                      |                          | 0-10       | 5-65        |            |                 | 0-450      | 200-950     |            |
| 650   |                               |                                  |                               |                                              |                                        |                                | 1,425           | 325                          |                              | 2,875                      |                          | 0-10       | 5-80        |            |                 | 0-500      | 300-950     |            |
| 625   |                               |                                  |                               |                                              |                                        |                                | 1,450           | 375                          |                              | 2,850                      |                          | 0-10       | 5-100       |            |                 | 0-500      | 350-1,000   |            |
| 600   |                               |                                  |                               |                                              |                                        |                                | 1,450           | 425                          |                              | 2,850                      |                          | 0-10       | 5-120       |            |                 | 0-550      | 400-1,000   |            |
| 575   |                               |                                  |                               |                                              |                                        |                                | 1,475           | 450                          |                              | 2,850                      | 0                        | 0-15       | 10-150      |            | 0               | 0-600      | 400-1,000   |            |
| 550   |                               |                                  |                               |                                              |                                        |                                | 1,475           | 475                          |                              | 2,825                      | 0-5                      | 0-20       | 10-190      |            | 0-50            | 0-600      | 450-1,050   |            |
| 525   |                               |                                  |                               |                                              |                                        |                                | 1,475           | 500                          |                              | 2,825                      | 0-5                      | 0-25       | 10-250      |            | 0-200           | 0-650      | 450-1,050   |            |
| 500   |                               |                                  |                               | 0                                            |                                        |                                | 1,500           | 525                          |                              | 2,800                      | 0-5                      | 0-25       | 15-300      |            | 0-250           | 0-650      | 500-1,050   |            |
| 475   |                               |                                  |                               | 50                                           |                                        |                                | 1,500           | 550                          |                              | 2,800                      | 0-5                      | 0-40       | 20-450      |            | 0-300           | 0-650      | 550-1,050   |            |
| 450   |                               |                                  |                               | 100                                          |                                        |                                | 1,500           | 575                          |                              | 2,775                      | 0-5                      | 5-50       | 25-570      |            | 0-300           | 50-700     | 550-1,100   |            |
| 425   |                               |                                  |                               | 150                                          |                                        |                                | 1,525           | 600                          |                              | 2,750                      | 0-10                     | 5-70       | 30-750      |            | 0-350           | 150-700    | 600-1,100   |            |
| 400   | 0                             |                                  |                               | 200                                          |                                        | 0                              | 1,525           | 600                          | 0                            | 2,725                      | 0-10                     | 5-90       | 40-1,000    |            | 0-400           | 200-700    | 600-1,100   |            |
| 375   | 50                            |                                  |                               | 250                                          |                                        | 400                            | 1,525           | 625                          | 125                          | 2,725                      | 0-15                     | 5-110      | 50-1,300    |            | 0-400           | 250-750    | 600-1,100   |            |
| 350   | 100                           |                                  |                               | 300                                          |                                        | 425                            | 1,525           | 650                          | 175                          | 2,700                      | 0-15                     | 10-140     | 70-1,600    |            | 0-400           | 300-750    | 650-1,100   |            |
| 325   | 150                           |                                  | 0                             | 325                                          |                                        | 425                            | 1,550           | 650                          | 225                          | 2,675                      | 0-20                     | 10-165     | 80-1,980    |            | 0-400           | 350-750    | 650-1,100   |            |
| 300   | 250                           | 0                                | 50                            | 350                                          |                                        | 425                            | 1,550           | 675                          | 250                          | 2,650                      | 0-25                     | 10-200     | 100-2,340   |            | 0-450           | 350-750    | 650-1,150   |            |
| 275   | 375                           | 25                               | 100                           | 375                                          |                                        | 450                            | 1,550           | 675                          | 275                          | 2,625                      | 0-25                     | 10-240     | 120-2,820   |            | 0-500           | 400-800    | 650-1,150   |            |
| 250   | 400                           | 75                               | 150                           | 400                                          |                                        | 450                            | 1,550           | 675                          | 300                          | 2,600                      | 0-35                     | 15-275     | 140-3,300   |            | 0-500           | 400-800    | 700-1,150   |            |
| 225   | 425                           | 100                              | 175                           | 400                                          |                                        | 450                            | 1,550           | 700                          | 325                          | 2,575                      | 0-35                     | 15-325     | 160-3,900   |            | 0-550           | 400-800    | 700-1,150   |            |
| 200   | 450                           | 125                              | 200                           | 425                                          |                                        | 475                            | 1,550           | 700                          | 350                          | 2,550                      | 5-50                     | 20-450     | 220-5,400   |            | 50-550          | 450-800    | 700-1,150   |            |
| 175   | 450                           | 175                              | 225                           | 450                                          | 0                                      | 475                            | 1,575           | 700                          | 350                          | 2,525                      | 5-60                     | 25-550     | 280-6,600   | 0          | 100-550         | 450-800    | 700-1,150   | 0          |
| 150   | 475                           | 225                              | 225                           | 450                                          | 400                                    | 500                            | 1,575           | 725                          | 375                          | 2,475                      | 5-80                     | 30-700     | 340-8,400   | 0-5        | 150-550         | 450-800    | 700-1,150   | 0-50       |
| 125   | 500                           | 275                              | 250                           | 475                                          | 425                                    | 500                            | 1,575           | 725                          | 375                          | 2,450                      | 5-100                    | 40-940     | 450-11,000  | 0-5        | 200-550         | 450-800    | 700-1,150   | 0-100      |
| 100   | 500                           | 300                              | 250                           | 475                                          | 425                                    | 525                            | 1,550           | 725                          | 400                          | 2,425                      | 5-125                    | 50-1,140   | 540-13,500  | 0-5        | 200-550         | 450-800    | 700-1,150   | 0-150      |
| 75    | 500                           | 300                              | 275                           | 475                                          | 425                                    | 525                            | 1,400           | 650                          | 350                          | 2,400                      | 10-160                   | 60-1,450   | 700-17,400  | 0-5        | 200-550         | 450-800    | 700-1,150   | 0-150      |
| 50    | 475                           | 300                              | 275                           | 475                                          | 400                                    | 500                            | 1,250           | 575                          | 325                          | 2,350                      | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |
| 25    | 450                           | 275                              | 250                           | 425                                          | 350                                    | 475                            | 1,100           | 500                          | 275                          | 2,325                      |                          |            |             |            |                 |            |             |            |
| 0     | 325                           | 225                              | 175                           | 375                                          | 300                                    | 400                            | 925             | 450                          | 250                          | 2,275                      |                          |            |             |            |                 |            |             |            |

Figure 3.6b continued.

<sup>1</sup>Long-Range Cannon.

CASUALTY and DAMAGE Tables  
Long-Range Cannon

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                  |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt           | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,200 |                   | 0       |                     |         |                  |         |                                 |         |                                   |         | 600                      | 600     | 3,850             | 2,975 | 2,700 | 2,375           | 1,375 | 925   | 1,275             | 900   | 100   |
| 1,150 |                   | 250     |                     |         |                  |         |                                 |         |                                   |         | 850                      | 850     | 3,850             | 3,000 | 2,725 | 2,400           | 1,400 | 1,000 | 1,325             | 950   | 350   |
| 1,100 |                   | 400     |                     |         |                  |         | 0                               |         |                                   | 0       | 1,000                    | 1,000   | 3,875             | 3,000 | 2,750 | 2,425           | 1,450 | 1,050 | 1,375             | 1,025 | 500   |
| 1,050 |                   | 525     |                     |         |                  |         | 325                             |         |                                   | 150     | 1,150                    | 1,150   | 3,875             | 3,025 | 2,750 | 2,425           | 1,500 | 1,100 | 1,400             | 1,075 | 600   |
| 1,000 |                   | 625     |                     |         |                  |         | 450                             |         |                                   | 350     | 1,300                    | 1,300   | 3,900             | 3,050 | 2,775 | 2,450           | 1,525 | 1,150 | 1,500             | 1,125 | 675   |
| 950   |                   | 700     |                     | 0       |                  |         | 550                             |         |                                   | 475     | 1,500                    | 1,500   | 3,900             | 3,050 | 2,800 | 2,475           | 1,550 | 1,200 | 1,650             | 1,150 | 750   |
| 900   | 0                 | 750     |                     | 200     |                  |         | 625                             |         |                                   | 550     | 1,750                    | 1,750   | 3,925             | 3,075 | 2,800 | 2,500           | 1,575 | 1,225 | 2,100             | 1,200 | 800   |
| 850   | 275               | 800     |                     | 350     | 0                |         | 700                             |         |                                   | 0       | 625                      | 2,125   | 2,125             | 3,925 | 3,075 | 2,825           | 2,500 | 1,600 | 1,250             | 2,175 | 850   |
| 800   | 400               | 850     |                     | 450     | 300              |         | 750                             |         |                                   | 175     | 700                      | 2,175   | 2,175             | 3,950 | 3,100 | 2,850           | 2,525 | 1,625 | 1,300             | 2,175 | 900   |
| 775   | 450               | 875     |                     | 500     | 350              |         | 775                             |         |                                   | 475     | 725                      | 2,200   | 2,200             | 3,950 | 3,100 | 2,850           | 2,525 | 1,650 | 1,300             | 2,175 | 925   |
| 750   | 500               | 900     |                     | 550     | 400              |         | 800                             |         |                                   | 550     | 750                      | 2,200   | 2,200             | 3,950 | 3,100 | 2,850           | 2,550 | 1,650 | 1,325             | 2,175 | 950   |
| 725   | 525               | 925     | 0                   | 575     | 450              |         | 825                             |         | 175                               | 625     | 775                      | 2,200   | 2,200             | 3,950 | 3,125 | 2,850           | 2,550 | 1,675 | 1,350             | 2,175 | 950   |
| 700   | 550               | 950     | 100                 | 600     | 475              |         | 850                             |         | 250                               | 675     | 800                      | 2,175   | 2,175             | 3,975 | 3,125 | 2,875           | 2,550 | 1,675 | 1,350             | 2,225 | 975   |
| 675   | 600               | 950     | 200                 | 625     | 525              |         | 875                             |         | 325                               | 725     | 825                      | 2,175   | 2,175             | 3,975 | 3,125 | 2,875           | 2,550 | 1,700 | 1,350             | 2,200 | 1,000 |
| 650   | 625               | 975     | 275                 | 650     | 550              |         | 875                             |         | 375                               | 1,200   | 1,200                    | 2,150   | 2,150             | 3,975 | 3,150 | 2,875           | 2,575 | 1,700 | 1,375             | 2,175 | 1,000 |
| 625   | 650               | 1,000   | 325                 | 675     | 575              |         | 900                             |         | 400                               | 1,225   | 1,225                    | 2,125   | 2,125             | 3,975 | 3,150 | 2,875           | 2,575 | 1,700 | 1,400             | 2,150 | 1,025 |
| 600   | 650               | 1,000   | 375                 | 700     | 600              |         | 925                             |         | 450                               | 1,250   | 1,250                    | 2,100   | 2,100             | 3,975 | 3,150 | 2,900           | 2,575 | 1,725 | 1,400             | 2,125 | 1,050 |
| 575   | 675               | 1,025   | 400                 | 725     | 625              |         | 950                             |         | 475                               | 1,275   | 1,275                    | 2,075   | 2,075             | 3,975 | 3,150 | 2,900           | 2,600 | 1,725 | 1,400             | 2,100 | 1,050 |
| 550   | 700               | 1,025   | 450                 | 750     | 650              |         | 950                             | 0       | 500                               | 1,275   | 1,275                    | 2,050   | 2,050             | 3,975 | 3,150 | 2,900           | 2,600 | 1,725 | 1,425             | 2,075 | 1,075 |
| 525   | 725               | 1,050   | 475                 | 750     | 675              |         | 975                             | 150     | 525                               | 1,250   | 1,250                    | 2,000   | 2,000             | 4,000 | 3,150 | 2,900           | 2,600 | 1,750 | 1,425             | 2,025 | 1,075 |
| 500   | 825               | 1,050   | 500                 | 775     | 675              |         | 975                             | 225     | 550                               | 1,250   | 1,250                    | 1,975   | 1,975             | 4,000 | 3,175 | 2,900           | 2,600 | 1,750 | 1,450             | 2,000 | 1,100 |
| 475   | 850               | 1,075   | 525                 | 800     | 700              |         | 1,000                           | 275     | 575                               | 1,225   | 1,225                    | 1,950   | 1,950             | 4,000 | 3,175 | 2,925           | 2,600 | 1,750 | 1,450             | 1,950 | 1,100 |
| 450   | 850               | 1,075   | 550                 | 800     | 725              |         | 1,000                           | 300     | 600                               | 1,200   | 1,200                    | 1,900   | 1,900             | 4,000 | 3,175 | 2,925           | 2,600 | 1,750 | 1,450             | 1,925 | 1,125 |
| 425   | 850               | 1,100   | 575                 | 825     | 725              |         | 1,025                           | 350     | 625                               | 1,175   | 1,175                    | 1,850   | 1,850             | 4,000 | 3,175 | 2,925           | 2,625 | 1,775 | 1,450             | 1,875 | 1,125 |
| 400   | 850               | 1,100   | 575                 | 825     | 750              |         | 1,025                           | 375     | 625                               | 1,175   | 1,175                    | 1,825   | 1,825             | 4,000 | 3,175 | 2,925           | 2,625 | 1,775 | 1,475             | 1,850 | 1,125 |
| 375   | 875               | 1,100   | 600                 | 850     | 750              |         | 1,025                           | 400     | 650                               | 1,150   | 1,150                    | 1,775   | 1,775             | 4,000 | 3,175 | 2,925           | 2,625 | 1,775 | 1,475             | 1,800 | 1,150 |
| 350   | 875               | 1,125   | 625                 | 850     | 775              |         | 1,050                           | 425     | 650                               | 1,125   | 1,125                    | 1,750   | 1,750             | 4,000 | 3,175 | 2,925           | 2,625 | 1,800 | 1,475             | 1,750 | 1,150 |
| 325   | 875               | 1,125   | 650                 | 850     | 775              |         | 1,050                           | 450     | 675                               | 1,100   | 1,100                    | 1,700   | 1,700             | 4,025 | 3,175 | 2,950           | 2,625 | 1,800 | 1,475             | 1,725 | 1,150 |
| 300   | 875               | 1,125   | 650                 | 875     | 800              |         | 1,050                           | 450     | 675                               | 1,075   | 1,075                    | 1,650   | 1,650             | 4,025 | 3,175 | 2,950           | 2,625 | 1,800 | 1,500             | 1,725 | 1,175 |
| 275   | 875               | 1,150   | 650                 | 875     | 800              |         | 1,075                           | 475     | 700                               | 1,075   | 1,075                    | 1,625   | 1,625             | 4,025 | 3,200 | 2,950           | 2,650 | 1,800 | 1,500             | 1,725 | 1,175 |
| 250   | 875               | 1,150   | 650                 | 900     | 800              |         | 1,075                           | 475     | 700                               | 1,050   | 1,050                    | 1,600   | 1,600             | 4,025 | 3,200 | 2,950           | 2,650 | 1,800 | 1,500             | 1,750 | 1,175 |
| 225   | 875               | 1,150   | 675                 | 900     | 825              |         | 1,075                           | 500     | 700                               | 1,025   | 1,025                    | 1,575   | 1,575             | 4,025 | 3,200 | 2,950           | 2,650 | 1,800 | 1,500             | 1,750 | 1,175 |
| 200   | 875               | 1,150   | 675                 | 900     | 825              |         | 1,075                           | 500     | 725                               | 1,025   | 1,050                    | 1,550   | 1,550             | 4,025 | 3,200 | 2,950           | 2,650 | 1,800 | 1,500             | 1,750 | 1,200 |
| 175   | 875               | 1,150   | 700                 | 900     | 825              |         | 1,075                           | 525     | 725                               | 1,000   | 1,050                    | 1,500   | 1,500             | 4,025 | 3,200 | 2,950           | 2,650 | 1,800 | 1,500             | 1,750 | 1,200 |
| 150   | 875               | 1,150   | 700                 | 900     | 825              |         | 1,100                           | 525     | 725                               | 975     | 1,050                    | 1,475   | 1,475             | 4,025 | 3,200 | 2,950           | 2,650 | 1,800 | 1,500             | 1,750 | 1,200 |
| 125   | 875               | 1,175   | 700                 | 900     | 850              |         | 1,100                           | 525     | 725                               | 975     | 1,050                    | 1,450   | 1,450             | 3,800 | 3,050 | 2,850           | 2,600 | 1,825 | 1,525             | 1,750 | 1,200 |
| 100   | 900               | 1,175   | 700                 | 925     | 850              |         | 1,100                           | 525     | 750                               | 950     | 1,050                    | 1,425   | 1,425             | 3,575 | 2,825 | 2,600           | 2,525 | 1,825 | 1,525             | 1,750 | 1,200 |
| 75    | 900               | 1,175   | 700                 | 925     | 850              |         | 1,100                           | 550     | 750                               | 925     | 1,050                    | 1,400   | 1,400             | 3,325 | 2,600 | 2,350           | 2,450 | 1,825 | 1,525             | 1,750 | 1,200 |
| 50    | 900               | 1,175   | 700                 | 925     | 850              |         | 1,100                           | 550     | 750                               | 900     | 1,050                    | 1,375   | 1,375             | 3,075 | 2,350 | 2,100           | 2,350 | 1,825 | 1,525             | 1,750 | 1,200 |
| 25    | 900               | 1,175   | 700                 | 925     | 850              |         | 1,100                           | 550     | 750                               | 900     | 1,050                    | 1,350   | 1,350             | 2,850 | 2,125 | 1,850           | 2,275 | 1,825 | 1,525             | 1,750 | 1,200 |
| 0     | 900               | 1,175   | 700                 | 925     | 850              |         | 1,100                           | 550     | 750                               | 875     | 1,050                    | 1,325   | 1,325             | 2,575 | 1,875 | 1,600           | 2,175 | 1,825 | 1,525             | 1,750 | 1,200 |

HOB<sub>ts</sub> = 65 mLow HOB<sub>min</sub> = 115 mHigh HOB<sub>min</sub> = 259 mHOB<sub>99</sub> = HOB<sub>ts</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>ts</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>ts</sub> + 1.9 PE<sub>h</sub> m

Figure 3.6c.

# CASUALTY and DAMAGE Tables Long-Range Cannon

ECHO/10 KT

All figures in meters

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III  | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 1,200 |                               |                                  |                              |                                              |                                        |                                | 1,775           |                              |                              | 3,650                      |                          |            | 0-5          |            |                 |            | 0-650       |            |
| 1,150 |                               |                                  |                              |                                              |                                        |                                | 1,825           |                              |                              | 3,675                      |                          |            | 0-5          |            |                 |            | 0-750       |            |
| 1,100 |                               |                                  |                              |                                              |                                        |                                | 1,850           |                              |                              | 3,675                      |                          |            | 0-10         |            |                 |            | 0-800       |            |
| 1,050 |                               |                                  |                              |                                              |                                        |                                | 1,875           | 0                            |                              | 3,675                      |                          |            | 0-10         |            |                 |            | 0-850       |            |
| 1,000 |                               |                                  |                              |                                              |                                        |                                | 1,900           | 150                          |                              | 3,675                      |                          |            | 0-15         |            |                 |            | 0-950       |            |
| 950   |                               |                                  |                              |                                              |                                        |                                | 1,925           | 350                          |                              | 3,675                      |                          | 0          | 0-20         |            |                 | 0          | 0-1,000     |            |
| 900   |                               |                                  |                              |                                              |                                        |                                | 1,950           | 450                          |                              | 3,650                      |                          | 0-5        | 0-25         |            |                 | 0-50       | 0-1,050     |            |
| 850   |                               |                                  |                              |                                              |                                        |                                | 1,975           | 550                          |                              | 3,625                      |                          | 0-5        | 0-35         |            |                 | 0-350      | 0-1,050     |            |
| 800   |                               |                                  |                              |                                              |                                        |                                | 2,000           | 625                          |                              | 3,600                      |                          | 0-5        | 5-45         |            |                 | 0-450      | 50-1,100    |            |
| 775   |                               |                                  |                              |                                              |                                        |                                | 2,000           | 650                          |                              | 3,600                      |                          | 0-5        | 5-55         |            |                 | 0-500      | 200-1,150   |            |
| 750   |                               |                                  |                              |                                              |                                        |                                | 2,025           | 675                          |                              | 3,600                      |                          | 0-10       | 5-70         |            |                 | 0-550      | 300-1,150   |            |
| 725   |                               |                                  |                              |                                              |                                        |                                | 2,025           | 700                          |                              | 3,575                      |                          | 0-10       | 5-85         |            |                 | 0-550      | 350-1,150   |            |
| 700   |                               |                                  |                              |                                              |                                        |                                | 2,025           | 725                          |                              | 3,575                      |                          | 0-10       | 5-100        |            |                 | 0-600      | 400-1,200   |            |
| 675   |                               |                                  |                              |                                              |                                        |                                | 2,050           | 750                          |                              | 3,550                      |                          | 0-15       | 5-125        |            |                 | 0-600      | 450-1,200   |            |
| 650   |                               |                                  |                              |                                              |                                        |                                | 2,050           | 775                          |                              | 3,550                      |                          | 0-15       | 10-160       |            |                 | 0-650      | 500-1,200   |            |
| 625   |                               |                                  |                              | 0                                            |                                        |                                | 2,050           | 800                          |                              | 3,525                      | 0                        | 0-20       | 10-200       |            | 0               | 0-700      | 500-1,200   |            |
| 600   |                               |                                  |                              | 50                                           |                                        |                                | 2,075           | 800                          |                              | 3,525                      | 0-5                      | 0-20       | 10-240       |            | 0-50            | 0-700      | 550-1,250   |            |
| 575   |                               |                                  |                              | 125                                          |                                        |                                | 2,075           | 825                          |                              | 3,500                      | 0-5                      | 0-25       | 15-300       |            | 0-200           | 0-700      | 600-1,250   |            |
| 550   |                               |                                  |                              | 175                                          |                                        |                                | 2,075           | 850                          | 0                            | 3,475                      | 0-5                      | 0-35       | 15-390       |            | 0-250           | 0-750      | 600-1,250   |            |
| 525   |                               |                                  |                              | 225                                          |                                        |                                | 2,075           | 875                          | 125                          | 3,450                      | 0-5                      | 0-45       | 20-500       |            | 0-300           | 0-750      | 650-1,250   |            |
| 500   | 0                             |                                  |                              | 275                                          |                                        |                                | 2,100           | 875                          | 200                          | 3,450                      | 0-10                     | 5-50       | 25-600       |            | 0-350           | 50-800     | 650-1,300   |            |
| 475   | 50                            |                                  |                              | 325                                          |                                        | 0                              | 2,100           | 900                          | 250                          | 3,425                      | 0-10                     | 5-75       | 40-900       |            | 0-400           | 150-800    | 650-1,300   |            |
| 450   | 125                           |                                  |                              | 375                                          |                                        | 575                            | 2,100           | 900                          | 300                          | 3,400                      | 0-15                     | 5-100      | 50-1,140     |            | 0-400           | 250-800    | 700-1,300   |            |
| 425   | 175                           |                                  | 0                            | 400                                          |                                        | 600                            | 2,100           | 925                          | 325                          | 3,375                      | 0-15                     | 5-125      | 60-1,500     |            | 0-450           | 300-800    | 700-1,300   |            |
| 400   | 225                           |                                  | 25                           | 425                                          |                                        | 600                            | 2,125           | 925                          | 375                          | 3,350                      | 0-20                     | 10-170     | 80-1,980     |            | 0-450           | 300-850    | 700-1,300   |            |
| 375   | 350                           | 0                                | 75                           | 475                                          |                                        | 600                            | 2,125           | 950                          | 400                          | 3,325                      | 0-25                     | 10-220     | 120-2,600    |            | 0-500           | 350-850    | 750-1,300   |            |
| 350   | 475                           | 25                               | 125                          | 475                                          |                                        | 625                            | 2,125           | 950                          | 400                          | 3,300                      | 0-30                     | 15-270     | 140-3,200    |            | 0-500           | 400-850    | 750-1,350   |            |
| 325   | 500                           | 75                               | 175                          | 500                                          |                                        | 625                            | 2,125           | 950                          | 425                          | 3,275                      | 0-40                     | 15-330     | 160-3,960    |            | 0-500           | 400-850    | 750-1,350   |            |
| 300   | 550                           | 100                              | 200                          | 525                                          |                                        | 625                            | 2,125           | 975                          | 450                          | 3,250                      | 5-45                     | 20-390     | 200-4,680    |            | 50-550          | 400-850    | 750-1,350   |            |
| 275   | 575                           | 150                              | 250                          | 550                                          |                                        | 625                            | 2,125           | 975                          | 475                          | 3,225                      | 5-55                     | 20-470     | 230-5,650    | 0          | 150-550         | 450-900    | 800-1,350   | 0          |
| 250   | 575                           | 175                              | 275                          | 550                                          |                                        | 625                            | 2,125           | 975                          | 475                          | 3,200                      | 5-65                     | 25-550     | 270-6,600    | 0-5        | 200-550         | 450-900    | 800-1,350   | 0-50       |
| 225   | 600                           | 225                              | 275                          | 575                                          | 0                                      | 650                            | 2,150           | 975                          | 500                          | 3,175                      | 5-75                     | 30-650     | 320-7,800    | 0-5        | 200-600         | 450-900    | 800-1,350   | 0-150      |
| 200   | 625                           | 275                              | 300                          | 600                                          | 450                                    | 650                            | 2,150           | 1,000                        | 500                          | 3,150                      | 5-100                    | 40-900     | 440-10,800   | 0-5        | 250-600         | 500-900    | 800-1,350   | 0-150      |
| 175   | 650                           | 350                              | 325                          | 600                                          | 525                                    | 650                            | 2,150           | 1,000                        | 500                          | 3,125                      | 5-125                    | 50-1,100   | 540-13,200   | 0-5        | 250-600         | 500-900    | 800-1,350   | 0-200      |
| 150   | 650                           | 375                              | 325                          | 625                                          | 550                                    | 650                            | 2,150           | 1,000                        | 525                          | 3,075                      | 10-160                   | 60-1,400   | 680-16,800   | 0-5        | 300-600         | 500-900    | 800-1,350   | 0-200      |
| 125   | 650                           | 375                              | 350                          | 625                                          | 575                                    | 650                            | 2,075           | 975                          | 525                          | 3,050                      | 10-200                   | 75-1,850   | 900-22,200   | 0-5        | 300-600         | 500-900    | 800-1,350   | 0-250      |
| 100   | 650                           | 375                              | 350                          | 650                                          | 575                                    | 650                            | 1,900           | 900                          | 475                          | 3,025                      | 10-250                   | 90-2,250   | 1,080-27,000 | 0-10       | 300-600         | 500-900    | 800-1,350   | 0-250      |
| 75    | 650                           | 400                              | 375                          | 625                                          | 575                                    | 650                            | 1,750           | 825                          | 450                          | 2,975                      | 15-320                   | 120-2,900  | 1,400-34,800 | 0-10       | 300-600         | 500-900    | 800-1,350   | 0-250      |
| 50    | 625                           | 375                              | 350                          | 600                                          | 525                                    | 625                            | 1,575           | 750                          | 400                          | 2,950                      | FALLOUT COVERS           |            |              |            |                 |            |             |            |
| 25    | 550                           | 350                              | 300                          | 575                                          | 500                                    | 575                            | 1,425           | 675                          | 375                          | 2,900                      |                          |            |              |            |                 |            |             |            |
| 0     | 450                           | 300                              | 250                          | 500                                          | 425                                    | 500                            | 1,250           | 600                          | 325                          | 2,875                      |                          |            |              |            |                 |            |             |            |

LRC 1

Figure 3.6c continued.

<sup>1</sup>Long-Range Cannon.

CASUALTY and DAMAGE Tables  
Long-Range Cannon  
All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,200 |                   | 400     |                     |         |                    | 250     |                                 |         |                                   | 0       | 1,600                    | 1,600   | 5,725             | 3,850 | 3,275 | 3,350           | 1,950 | 1,375 | 2,050             | 1,075 | 575   |
| 1,150 |                   | 525     |                     |         |                    | 425     |                                 |         |                                   | 250     | 1,750                    | 1,750   | 5,725             | 3,875 | 3,300 | 3,375           | 1,975 | 1,425 | 2,475             | 1,125 | 675   |
| 1,100 |                   | 625     |                     |         |                    | 550     |                                 |         |                                   | 425     | 1,950                    | 1,950   | 5,750             | 3,875 | 3,325 | 3,400           | 2,000 | 1,450 | 2,700             | 1,150 | 750   |
| 1,050 |                   | 700     |                     | 0       |                    | 625     |                                 |         |                                   | 525     | 2,350                    | 2,350   | 5,750             | 3,900 | 3,350 | 3,400           | 2,025 | 1,500 | 2,750             | 1,275 | 825   |
| 1,000 | 0                 | 775     |                     | 225     | 0                  | 700     |                                 |         | 0                                 | 625     | 2,625                    | 2,625   | 5,750             | 3,900 | 3,350 | 3,425           | 2,050 | 1,525 | 2,750             | 1,400 | 875   |
| 950   | 300               | 825     |                     | 400     | 175                | 775     |                                 |         | 475                               | 700     | 2,675                    | 2,675   | 5,775             | 3,925 | 3,375 | 3,425           | 2,075 | 1,550 | 2,750             | 1,650 | 925   |
| 900   | 425               | 875     |                     | 500     | 350                | 825     |                                 |         | 625                               | 750     | 2,700                    | 2,700   | 5,775             | 3,925 | 3,375 | 3,450           | 2,100 | 1,600 | 2,750             | 1,800 | 975   |
| 850   | 525               | 925     |                     | 575     | 450                | 875     |                                 | 0       | 800                               | 825     | 2,700                    | 2,700   | 5,775             | 3,950 | 3,400 | 3,475           | 2,125 | 1,625 | 2,775             | 1,875 | 1,025 |
| 800   | 600               | 975     | 0                   | 650     | 550                | 925     |                                 | 275     | 1,150                             | 1,150   | 2,650                    | 2,650   | 5,800             | 3,950 | 3,400 | 3,475           | 2,150 | 1,650 | 2,725             | 1,850 | 1,075 |
| 775   | 625               | 1,000   | 200                 | 675     | 575                | 950     |                                 | 350     | 1,450                             | 1,450   | 2,650                    | 2,650   | 5,800             | 3,950 | 3,425 | 3,475           | 2,150 | 1,650 | 2,700             | 1,850 | 1,075 |
| 750   | 650               | 1,025   | 275                 | 700     | 600                | 975     |                                 | 400     | 1,525                             | 1,525   | 2,625                    | 2,625   | 5,800             | 3,950 | 3,425 | 3,475           | 2,150 | 1,675 | 2,675             | 1,825 | 1,100 |
| 725   | 675               | 1,025   | 325                 | 725     | 625                | 975     |                                 | 450     | 1,550                             | 1,550   | 2,575                    | 2,575   | 5,800             | 3,975 | 3,425 | 3,500           | 2,175 | 1,675 | 2,650             | 1,800 | 1,125 |
| 700   | 700               | 1,050   | 400                 | 750     | 675                | 1,000   |                                 | 475     | 1,550                             | 1,550   | 2,525                    | 2,525   | 5,800             | 3,975 | 3,425 | 3,500           | 2,175 | 1,700 | 2,600             | 1,800 | 1,125 |
| 675   | 725               | 1,075   | 425                 | 775     | 700                | 1,025   |                                 | 525     | 1,525                             | 1,525   | 2,475                    | 2,475   | 5,800             | 3,975 | 3,425 | 3,500           | 2,175 | 1,700 | 2,575             | 1,775 | 1,150 |
| 650   | 1,000             | 1,075   | 475                 | 800     | 725                | 1,050   | 0                               | 550     | 1,525                             | 1,525   | 2,450                    | 2,450   | 5,825             | 3,975 | 3,450 | 3,500           | 2,200 | 1,700 | 2,550             | 1,750 | 1,150 |
| 625   | 1,100             | 1,100   | 500                 | 825     | 725                | 1,050   | 125                             | 575     | 1,525                             | 1,525   | 2,400                    | 2,400   | 5,825             | 3,975 | 3,450 | 3,500           | 2,200 | 1,725 | 2,500             | 1,725 | 1,175 |
| 600   | 1,125             | 1,125   | 525                 | 825     | 750                | 1,075   | 200                             | 600     | 1,500                             | 1,500   | 2,350                    | 2,350   | 5,825             | 3,975 | 3,450 | 3,525           | 2,200 | 1,725 | 2,475             | 1,700 | 1,200 |
| 575   | 1,125             | 1,125   | 550                 | 850     | 775                | 1,075   | 275                             | 625     | 1,500                             | 1,500   | 2,325                    | 2,325   | 5,825             | 4,000 | 3,450 | 3,525           | 2,225 | 1,750 | 2,425             | 1,675 | 1,200 |
| 550   | 1,150             | 1,150   | 575                 | 875     | 800                | 1,100   | 325                             | 650     | 1,475                             | 1,475   | 2,275                    | 2,275   | 5,825             | 4,000 | 3,450 | 3,525           | 2,225 | 1,750 | 2,400             | 1,650 | 1,225 |
| 525   | 1,150             | 1,150   | 600                 | 875     | 800                | 1,100   | 350                             | 675     | 1,450                             | 1,450   | 2,250                    | 2,250   | 5,825             | 4,000 | 3,450 | 3,525           | 2,225 | 1,750 | 2,350             | 1,625 | 1,225 |
| 500   | 1,150             | 1,150   | 625                 | 900     | 825                | 1,125   | 400                             | 700     | 1,425                             | 1,425   | 2,200                    | 2,200   | 5,825             | 4,000 | 3,475 | 3,525           | 2,225 | 1,750 | 2,300             | 1,600 | 1,225 |
| 475   | 1,150             | 1,175   | 650                 | 900     | 850                | 1,125   | 425                             | 700     | 1,400                             | 1,400   | 2,175                    | 2,175   | 5,825             | 4,000 | 3,475 | 3,525           | 2,250 | 1,775 | 2,275             | 1,575 | 1,250 |
| 450   | 1,150             | 1,175   | 650                 | 925     | 850                | 1,150   | 450                             | 725     | 1,375                             | 1,375   | 2,150                    | 2,150   | 5,825             | 4,000 | 3,475 | 3,525           | 2,250 | 1,775 | 2,225             | 1,550 | 1,250 |
| 425   | 1,150             | 1,175   | 675                 | 925     | 875                | 1,150   | 475                             | 750     | 1,350                             | 1,350   | 2,100                    | 2,100   | 5,825             | 4,000 | 3,475 | 3,525           | 2,250 | 1,775 | 2,175             | 1,550 | 1,275 |
| 400   | 1,150             | 1,200   | 700                 | 950     | 875                | 1,150   | 500                             | 750     | 1,350                             | 1,350   | 2,075                    | 2,075   | 5,825             | 4,000 | 3,475 | 3,550           | 2,250 | 1,775 | 2,125             | 1,550 | 1,275 |
| 375   | 1,150             | 1,200   | 700                 | 950     | 875                | 1,175   | 525                             | 775     | 1,325                             | 1,325   | 2,050                    | 2,050   | 5,850             | 4,025 | 3,475 | 3,550           | 2,250 | 1,800 | 2,100             | 1,575 | 1,275 |
| 350   | 1,150             | 1,200   | 725                 | 975     | 900                | 1,175   | 525                             | 775     | 1,300                             | 1,300   | 2,025                    | 2,025   | 5,850             | 4,025 | 3,475 | 3,550           | 2,250 | 1,800 | 2,050             | 1,575 | 1,275 |
| 325   | 1,150             | 1,225   | 725                 | 975     | 900                | 1,175   | 550                             | 775     | 1,275                             | 1,275   | 1,975                    | 1,975   | 5,850             | 4,025 | 3,475 | 3,550           | 2,275 | 1,800 | 2,025             | 1,575 | 1,300 |
| 300   | 1,150             | 1,225   | 750                 | 975     | 925                | 1,175   | 550                             | 800     | 1,275                             | 1,275   | 1,950                    | 1,950   | 5,850             | 4,025 | 3,500 | 3,550           | 2,275 | 1,800 | 2,000             | 1,575 | 1,300 |
| 275   | 1,150             | 1,225   | 750                 | 1,000   | 925                | 1,200   | 575                             | 800     | 1,250                             | 1,250   | 1,925                    | 1,925   | 5,850             | 4,025 | 3,500 | 3,550           | 2,275 | 1,800 | 1,950             | 1,575 | 1,300 |
| 250   | 1,150             | 1,225   | 750                 | 1,000   | 925                | 1,200   | 575                             | 825     | 1,225                             | 1,225   | 1,900                    | 1,900   | 5,850             | 4,025 | 3,500 | 3,550           | 2,275 | 1,800 | 1,925             | 1,600 | 1,300 |
| 225   | 1,150             | 1,250   | 775                 | 1,000   | 950                | 1,200   | 600                             | 825     | 1,225                             | 1,225   | 1,875                    | 1,875   | 5,850             | 4,025 | 3,500 | 3,500           | 2,275 | 1,825 | 1,900             | 1,600 | 1,325 |
| 200   | 1,150             | 1,250   | 775                 | 1,000   | 950                | 1,200   | 600                             | 825     | 1,200                             | 1,200   | 1,850                    | 1,850   | 5,850             | 4,025 | 3,500 | 3,550           | 2,275 | 1,825 | 1,875             | 1,600 | 1,325 |
| 175   | 1,125             | 1,250   | 775                 | 1,000   | 950                | 1,200   | 625                             | 825     | 1,175                             | 1,175   | 1,825                    | 1,825   | 5,725             | 3,925 | 3,400 | 3,500           | 2,200 | 1,800 | 1,825             | 1,600 | 1,325 |
| 150   | 1,125             | 1,250   | 800                 | 1,000   | 950                | 1,225   | 625                             | 850     | 1,175                             | 1,175   | 1,800                    | 1,800   | 5,400             | 3,725 | 3,200 | 3,325           | 2,225 | 1,775 | 1,850             | 1,600 | 1,325 |
| 125   | 1,100             | 1,250   | 800                 | 1,025   | 950                | 1,225   | 625                             | 850     | 1,150                             | 1,175   | 1,775                    | 1,775   | 5,100             | 3,525 | 3,000 | 3,150           | 2,175 | 1,750 | 1,850             | 1,600 | 1,325 |
| 100   | 1,075             | 1,250   | 800                 | 1,025   | 950                | 1,225   | 625                             | 850     | 1,150                             | 1,175   | 1,750                    | 1,750   | 4,750             | 3,300 | 2,800 | 2,975           | 2,150 | 1,725 | 1,850             | 1,600 | 1,325 |
| 75    | 1,050             | 1,250   | 800                 | 1,025   | 950                | 1,225   | 625                             | 850     | 1,125                             | 1,175   | 1,725                    | 1,725   | 4,500             | 3,100 | 2,625 | 2,750           | 2,100 | 1,700 | 1,875             | 1,600 | 1,325 |
| 50    | 1,025             | 1,250   | 800                 | 1,025   | 975                | 1,225   | 625                             | 850     | 1,125                             | 1,175   | 1,700                    | 1,700   | 4,100             | 2,875 | 2,425 | 2,600           | 2,050 | 1,675 | 1,875             | 1,600 | 1,325 |
| 25    | 1,000             | 1,250   | 800                 | 1,025   | 975                | 1,225   | 625                             | 850     | 1,100                             | 1,175   | 1,675                    | 1,675   | 3,750             | 2,675 | 2,250 | 2,425           | 2,025 | 1,650 | 1,875             | 1,600 | 1,325 |
| 0     | 1,000             | 1,250   | 800                 | 1,025   | 975                | 1,225   | 625                             | 850     | 1,100                             | 1,175   | 1,675                    | 1,675   | 3,375             | 2,475 | 2,050 | 2,275           | 1,975 | 1,625 | 1,875             | 1,600 | 1,325 |

HOB<sub>fs</sub> = 82 m  
Low HOB<sub>min</sub> = 144 m  
High HOB<sub>min</sub> = 326 m  
HOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> m  
HOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> m  
HOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 3.6d

**CASUALTY and DAMAGE Tables**  
Long-Range Cannon

**FOXTROT/20 KT**

*All figures in meters*

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>Hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III  | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 1,200 |                               |                                  |                              |                                              |                                        |                                | 2,625           | 650                          |                              | 4,625                      |                          |            | 0-10         |            |                 |            | 0-750       |            |
| 1,150 |                               |                                  |                              |                                              |                                        |                                | 2,650           | 750                          |                              | 4,600                      |                          |            | 0-10         |            |                 |            | 0-800       |            |
| 1,100 |                               |                                  |                              |                                              |                                        |                                | 2,675           | 825                          |                              | 4,600                      |                          |            | 0-15         |            |                 |            | 0-900       |            |
| 1,050 |                               |                                  |                              |                                              |                                        |                                | 2,700           | 875                          |                              | 4,575                      |                          | 0          | 0-20         |            |                 | 0          | 0-950       |            |
| 1,000 |                               |                                  |                              |                                              |                                        |                                | 2,700           | 925                          |                              | 4,550                      |                          | 0-5        | 0-25         |            |                 | 0-50       | 0-1,000     |            |
| 950   |                               |                                  |                              |                                              |                                        |                                | 2,725           | 975                          |                              | 4,525                      |                          | 0-5        | 0-35         |            |                 | 0-300      | 0-1,050     |            |
| 900   |                               |                                  |                              |                                              |                                        |                                | 2,750           | 1,025                        |                              | 4,500                      |                          | 0-5        | 5-45         |            |                 | 0-450      | 50-1,100    |            |
| 850   |                               |                                  |                              |                                              |                                        |                                | 2,750           | 1,075                        |                              | 4,475                      |                          | 0-10       | 5-65         |            |                 | 0-550      | 350-1,150   |            |
| 800   |                               |                                  |                              | 0                                            |                                        |                                | 2,775           | 1,100                        |                              | 4,450                      |                          | 0-10       | 5-90         |            |                 | 0-600      | 450-1,150   |            |
| 775   |                               |                                  |                              | 25                                           |                                        |                                | 2,775           | 1,125                        |                              | 4,450                      | 0                        | 0-10       | 5-110        |            | 0               | 0-650      | 500-1,200   |            |
| 750   |                               |                                  |                              | 75                                           |                                        |                                | 2,800           | 1,150                        | 0                            | 4,425                      | 0-5                      | 0-15       | 10-140       |            | 0-50            | 0-700      | 550-1,200   |            |
| 725   |                               |                                  |                              | 150                                          |                                        |                                | 2,800           | 1,150                        | 75                           | 4,400                      | 0-5                      | 0-15       | 10-170       |            | 0-200           | 0-700      | 550-1,200   |            |
| 700   |                               |                                  |                              | 225                                          |                                        |                                | 2,800           | 1,175                        | 200                          | 4,400                      | 0-5                      | 0-20       | 10-200       |            | 0-300           | 0-750      | 600-1,250   |            |
| 675   |                               |                                  |                              | 275                                          |                                        |                                | 2,800           | 1,200                        | 275                          | 4,375                      | 0-5                      | 0-25       | 10-250       |            | 0-350           | 0-750      | 600-1,250   |            |
| 650   |                               |                                  |                              | 325                                          |                                        |                                | 2,825           | 1,200                        | 325                          | 4,350                      | 0-5                      | 0-30       | 15-320       |            | 0-400           | 0-800      | 650-1,250   |            |
| 625   | 0                             |                                  |                              | 375                                          |                                        | 0                              | 2,825           | 1,225                        | 375                          | 4,325                      | 0-5                      | 0-35       | 20-390       |            | 0-450           | 0-800      | 700-1,300   |            |
| 600   | 75                            |                                  |                              | 425                                          |                                        | 750                            | 2,825           | 1,225                        | 425                          | 4,325                      | 0-5                      | 5-40       | 20-480       |            | 0-450           | 50-800     | 700-1,300   |            |
| 575   | 125                           |                                  |                              | 475                                          |                                        | 775                            | 2,825           | 1,250                        | 450                          | 4,300                      | 0-10                     | 5-50       | 25-590       |            | 0-500           | 200-850    | 700-1,300   |            |
| 550   | 200                           |                                  |                              | 525                                          |                                        | 775                            | 2,825           | 1,250                        | 475                          | 4,275                      | 0-10                     | 5-65       | 30-750       |            | 0-550           | 250-850    | 750-1,300   |            |
| 525   | 250                           |                                  | 0                            | 550                                          |                                        | 775                            | 2,850           | 1,275                        | 500                          | 4,250                      | 0-10                     | 5-85       | 40-990       |            | 0-600           | 300-900    | 750-1,350   |            |
| 500   | 325                           |                                  | 25                           | 575                                          |                                        | 775                            | 2,850           | 1,275                        | 525                          | 4,225                      | 0-15                     | 5-100      | 50-1,200     |            | 0-600           | 350-900    | 800-1,350   |            |
| 475   | 425                           | 0                                | 100                          | 600                                          |                                        | 775                            | 2,850           | 1,275                        | 550                          | 4,200                      | 0-20                     | 10-150     | 75-1,800     |            | 0-600           | 400-900    | 800-1,350   |            |
| 450   | 600                           | 25                               | 150                          | 625                                          | 0                                      | 800                            | 2,850           | 1,300                        | 575                          | 4,175                      | 0-25                     | 10-190     | 100-2,280    |            | 0-600           | 400-900    | 800-1,350   |            |
| 425   | 675                           | 75                               | 200                          | 650                                          | 550                                    | 800                            | 2,850           | 1,300                        | 600                          | 4,150                      | 0-30                     | 10-250     | 120-3,000    |            | 0-650           | 450-950    | 800-1,350   |            |
| 400   | 700                           | 100                              | 250                          | 675                                          | 650                                    | 800                            | 2,850           | 1,300                        | 600                          | 4,125                      | 0-40                     | 15-330     | 160-3,960    |            | 0-650           | 450-950    | 850-1,350   |            |
| 375   | 725                           | 150                              | 275                          | 700                                          | 675                                    | 800                            | 2,875           | 1,325                        | 625                          | 4,100                      | 0-50                     | 20-430     | 210-5,160    |            | 0-650           | 500-950    | 850-1,400   |            |
| 350   | 750                           | 200                              | 325                          | 725                                          | 675                                    | 825                            | 2,875           | 1,325                        | 650                          | 4,075                      | 5-60                     | 25-530     | 260-6,360    |            | 50-700          | 500-950    | 850-1,400   |            |
| 325   | 775                           | 225                              | 350                          | 725                                          | 700                                    | 825                            | 2,875           | 1,325                        | 650                          | 4,050                      | 5-75                     | 30-660     | 320-7,920    | 0          | 150-700         | 500-950    | 850-1,400   | 0          |
| 300   | 800                           | 275                              | 350                          | 750                                          | 700                                    | 825                            | 2,875           | 1,325                        | 675                          | 4,025                      | 5-90                     | 35-780     | 380-9,360    | 0-5        | 200-700         | 550-1,000  | 850-1,400   | 0-50       |
| 275   | 800                           | 325                              | 375                          | 775                                          | 700                                    | 825                            | 2,875           | 1,350                        | 675                          | 4,000                      | 5-105                    | 40-940     | 460-11,300   | 0-5        | 250-700         | 550-1,000  | 900-1,400   | 0-150      |
| 250   | 825                           | 375                              | 400                          | 775                                          | 700                                    | 850                            | 2,875           | 1,350                        | 675                          | 3,950                      | 5-125                    | 45-1,100   | 530-13,200   | 0-5        | 250-750         | 550-1,000  | 900-1,400   | 0-200      |
| 225   | 850                           | 425                              | 425                          | 800                                          | 725                                    | 850                            | 2,875           | 1,350                        | 700                          | 3,925                      | 10-150                   | 60-1,300   | 630-15,600   | 0-5        | 300-750         | 600-1,000  | 900-1,400   | 0-200      |
| 200   | 850                           | 475                              | 450                          | 825                                          | 725                                    | 850                            | 2,875           | 1,350                        | 700                          | 3,900                      | 10-200                   | 75-1,800   | 870-21,600   | 0-5        | 300-750         | 600-1,000  | 900-1,400   | 0-250      |
| 175   | 875                           | 500                              | 450                          | 825                                          | 725                                    | 850                            | 2,850           | 1,350                        | 725                          | 3,875                      | 10-250                   | 90-2,200   | 1,060-26,400 | 0-10       | 350-750         | 600-1,000  | 900-1,400   | 0-250      |
| 150   | 875                           | 500                              | 475                          | 850                                          | 725                                    | 850                            | 2,675           | 1,275                        | 675                          | 3,825                      | 15-310                   | 120-2,800  | 1,350-33,600 | 0-10       | 350-750         | 600-1,000  | 900-1,400   | 0-300      |
| 125   | 850                           | 500                              | 475                          | 850                                          | 725                                    | 850                            | 2,500           | 1,200                        | 650                          | 3,800                      | 20-410                   | 150-3,700  | 1,780-44,000 | 0-10       | 350-750         | 600-1,000  | 900-1,400   | 0-300      |
| 100   | 850                           | 525                              | 475                          | 850                                          | 700                                    | 825                            | 2,350           | 1,125                        | 600                          | 3,775                      | 20-500                   | 180-4,500  | 2,160-54,000 | 0-15       | 350-750         | 600-1,000  | 900-1,400   | 0-300      |
| 75    | 825                           | 500                              | 475                          | 825                                          | 675                                    | 800                            | 2,175           | 1,050                        | 550                          | 3,725                      | FALLOUT GOVERNS          |            |              |            |                 |            |             |            |
| 50    | 775                           | 500                              | 450                          | 775                                          | 750                                    | 750                            | 2,000           | 975                          | 525                          | 3,700                      |                          |            |              |            |                 |            |             |            |
| 25    | 700                           | 450                              | 375                          | 725                                          | 600                                    | 725                            | 1,850           | 900                          | 475                          | 3,650                      |                          |            |              |            |                 |            |             |            |
| 0     | 600                           | 400                              | 325                          | 650                                          | 550                                    | 650                            | 1,675           | 825                          | 450                          | 3,625                      |                          |            |              |            |                 |            |             |            |

LRC 1

Figure 3.6d continued.

<sup>1</sup>Long-Range Cannon.

CASUALTY and DAMAGE Tables  
Long-Range Cannon

All figures in meters

| 1     | 2                 | 3     | 4                   | 5     | 6                  | 7     | 8                               | 9     | 10                                | 11    | 12                       | 13    | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|-------|---------------------|-------|--------------------|-------|---------------------------------|-------|-----------------------------------|-------|--------------------------|-------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |       | Protected personnel |       | Personnel in APC's |       | Personnel in l-m earth shelters |       | Personnel in multistory apt bldgs |       | Personnel in framehouses |       | Radius of safety  |       |       |                 |       |       |                   |       |       |
|       | Prompt            |       | Prompt              |       | Prompt             |       | Prompt                          |       | Prompt                            |       | Prompt                   |       | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |       |
|       |                   |       |                     |       |                    |       |                                 |       |                                   |       |                          |       | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,350 |                   | 600   |                     |       |                    | 400   |                                 |       | 0                                 | 125   | 3,750                    | 3,750 | 8,575             | 6,450 | 5,600 | 5,225           | 3,100 | 2,350 | 3,750             | 2,000 | 675   |
| 1,300 |                   | 700   |                     |       |                    | 550   |                                 |       | 900                               | 900   | 3,750                    | 3,750 | 8,575             | 6,450 | 5,600 | 5,225           | 3,125 | 2,375 | 3,750             | 2,175 | 750   |
| 1,250 |                   | 800   |                     |       |                    | 650   |                                 |       | 1,125                             | 1,125 | 3,750                    | 3,750 | 8,600             | 6,475 | 5,625 | 5,250           | 3,150 | 2,400 | 3,750             | 2,375 | 825   |
| 1,200 | 0                 | 875   |                     | 0     |                    | 750   |                                 |       | 1,300                             | 1,300 | 3,750                    | 3,750 | 8,600             | 6,475 | 5,625 | 5,250           | 3,175 | 2,425 | 3,750             | 2,500 | 925   |
| 1,150 | 250               | 925   |                     | 250   | 0                  | 800   |                                 |       | 1,425                             | 1,425 | 3,750                    | 3,750 | 8,600             | 6,475 | 5,625 | 5,275           | 3,175 | 2,450 | 3,750             | 2,550 | 975   |
| 1,100 | 425               | 975   | 0                   | 425   | 250                | 875   |                                 |       | 2,125                             | 2,125 | 3,700                    | 3,700 | 8,600             | 6,500 | 5,650 | 5,275           | 3,200 | 2,475 | 3,700             | 2,525 | 1,025 |
| 1,050 | 550               | 1,025 | 150                 | 550   | 400                | 950   |                                 |       | 2,150                             | 2,150 | 3,700                    | 3,700 | 8,625             | 6,500 | 5,650 | 5,300           | 3,225 | 2,500 | 3,650             | 2,500 | 1,125 |
| 1,000 | 625               | 1,075 | 350                 | 625   | 525                | 1,000 |                                 | 0     | 2,175                             | 2,175 | 3,650                    | 3,650 | 8,625             | 6,500 | 5,675 | 5,300           | 3,225 | 2,500 | 3,600             | 2,475 | 1,225 |
| 950   | 700               | 1,125 | 475                 | 700   | 600                | 1,050 |                                 | 300   | 2,175                             | 2,175 | 3,600                    | 3,600 | 8,625             | 6,500 | 5,675 | 5,300           | 3,250 | 2,525 | 3,550             | 2,425 | 1,375 |
| 900   | 1,350             | 1,350 | 550                 | 775   | 675                | 1,075 |                                 | 425   | 2,150                             | 2,150 | 3,500                    | 3,500 | 8,625             | 6,525 | 5,675 | 5,325           | 3,250 | 2,550 | 3,475             | 2,400 | 1,450 |
| 850   | 1,575             | 1,575 | 650                 | 825   | 750                | 1,125 |                                 | 525   | 2,125                             | 2,125 | 3,400                    | 3,400 | 8,650             | 6,525 | 5,675 | 5,325           | 3,275 | 2,550 | 3,400             | 2,350 | 1,475 |
| 800   | 1,625             | 1,625 | 700                 | 875   | 800                | 1,150 |                                 | 600   | 2,100                             | 2,100 | 3,300                    | 3,300 | 8,650             | 6,525 | 5,700 | 5,325           | 3,300 | 2,575 | 3,325             | 2,300 | 1,450 |
| 775   | 1,625             | 1,625 | 725                 | 900   | 825                | 1,175 | 0                               | 625   | 2,100                             | 2,100 | 3,250                    | 3,250 | 8,650             | 6,525 | 5,700 | 5,325           | 3,300 | 2,575 | 3,300             | 2,275 | 1,450 |
| 750   | 1,625             | 1,625 | 750                 | 925   | 850                | 1,200 | 125                             | 650   | 2,075                             | 2,075 | 3,250                    | 3,250 | 8,650             | 6,525 | 5,700 | 5,350           | 3,300 | 2,600 | 3,250             | 2,250 | 1,425 |
| 725   | 1,650             | 1,650 | 775                 | 925   | 850                | 1,200 | 225                             | 675   | 2,050                             | 2,050 | 3,200                    | 3,200 | 8,650             | 6,525 | 5,700 | 5,350           | 3,300 | 2,600 | 3,225             | 2,225 | 1,425 |
| 700   | 1,650             | 1,650 | 800                 | 950   | 875                | 1,225 | 300                             | 700   | 2,050                             | 2,050 | 3,150                    | 3,150 | 8,650             | 6,525 | 5,700 | 5,350           | 3,325 | 2,600 | 3,175             | 2,175 | 1,400 |
| 675   | 1,650             | 1,650 | 825                 | 975   | 900                | 1,250 | 350                             | 725   | 2,025                             | 2,025 | 3,100                    | 3,100 | 8,650             | 6,550 | 5,725 | 5,350           | 3,325 | 2,625 | 3,125             | 2,150 | 1,375 |
| 650   | 1,650             | 1,650 | 850                 | 1,000 | 925                | 1,250 | 400                             | 750   | 2,000                             | 2,000 | 3,050                    | 3,050 | 8,650             | 6,550 | 5,725 | 5,350           | 3,325 | 2,625 | 3,075             | 2,125 | 1,350 |
| 625   | 1,650             | 1,650 | 850                 | 1,000 | 925                | 1,250 | 425                             | 775   | 1,975                             | 1,975 | 3,000                    | 3,000 | 8,675             | 6,550 | 5,725 | 5,350           | 3,325 | 2,625 | 3,050             | 2,100 | 1,375 |
| 600   | 1,650             | 1,650 | 875                 | 1,025 | 950                | 1,275 | 475                             | 800   | 1,950                             | 1,950 | 3,000                    | 3,000 | 8,675             | 6,550 | 5,725 | 5,375           | 3,325 | 2,625 | 3,000             | 2,100 | 1,375 |
| 575   | 1,650             | 1,650 | 900                 | 1,025 | 975                | 1,275 | 500                             | 825   | 1,925                             | 1,925 | 2,950                    | 2,950 | 8,675             | 6,550 | 5,725 | 5,375           | 3,350 | 2,650 | 2,950             | 2,075 | 1,400 |
| 550   | 1,650             | 1,650 | 900                 | 1,050 | 975                | 1,300 | 525                             | 825   | 1,900                             | 1,900 | 2,900                    | 2,900 | 8,675             | 6,550 | 5,725 | 5,375           | 3,350 | 2,650 | 2,900             | 2,050 | 1,400 |
| 525   | 1,650             | 1,650 | 925                 | 1,050 | 1,000              | 1,300 | 550                             | 850   | 1,875                             | 1,875 | 2,900                    | 2,900 | 8,675             | 6,550 | 5,725 | 5,375           | 3,350 | 2,650 | 2,850             | 2,025 | 1,425 |
| 500   | 1,650             | 1,650 | 950                 | 1,075 | 1,000              | 1,325 | 575                             | 850   | 1,850                             | 1,850 | 2,850                    | 2,850 | 8,675             | 6,575 | 5,725 | 5,375           | 3,350 | 2,650 | 2,825             | 2,025 | 1,425 |
| 475   | 1,650             | 1,650 | 950                 | 1,075 | 1,025              | 1,325 | 600                             | 875   | 1,825                             | 1,825 | 2,800                    | 2,800 | 8,675             | 6,575 | 5,725 | 5,375           | 3,350 | 2,650 | 2,775             | 2,000 | 1,425 |
| 450   | 1,650             | 1,650 | 975                 | 1,100 | 1,025              | 1,325 | 625                             | 875   | 1,800                             | 1,800 | 2,800                    | 2,800 | 8,675             | 6,575 | 5,725 | 5,375           | 3,350 | 2,650 | 2,750             | 1,975 | 1,425 |
| 425   | 1,650             | 1,650 | 975                 | 1,100 | 1,050              | 1,350 | 625                             | 900   | 1,775                             | 1,775 | 2,750                    | 2,750 | 8,675             | 6,575 | 5,725 | 5,375           | 3,350 | 2,675 | 2,725             | 1,950 | 1,450 |
| 400   | 1,650             | 1,650 | 975                 | 1,125 | 1,050              | 1,350 | 650                             | 900   | 1,750                             | 1,750 | 2,700                    | 2,700 | 8,675             | 6,575 | 5,725 | 5,375           | 3,350 | 2,675 | 2,700             | 1,950 | 1,450 |
| 375   | 1,650             | 1,650 | 1,000               | 1,125 | 1,050              | 1,350 | 650                             | 925   | 1,725                             | 1,725 | 2,700                    | 2,700 | 8,675             | 6,575 | 5,800 | 5,375           | 3,350 | 2,675 | 2,650             | 1,925 | 1,450 |
| 350   | 1,650             | 1,650 | 1,000               | 1,125 | 1,075              | 1,375 | 675                             | 925   | 1,700                             | 1,700 | 2,650                    | 2,650 | 8,675             | 6,575 | 5,800 | 5,375           | 3,375 | 2,675 | 2,625             | 1,900 | 1,475 |
| 325   | 1,650             | 1,650 | 1,025               | 1,150 | 1,075              | 1,375 | 675                             | 950   | 1,675                             | 1,675 | 2,600                    | 2,600 | 8,675             | 6,575 | 5,800 | 5,375           | 3,375 | 2,675 | 2,600             | 1,900 | 1,475 |
| 300   | 1,650             | 1,650 | 1,025               | 1,150 | 1,075              | 1,375 | 700                             | 950   | 1,675                             | 1,675 | 2,600                    | 2,600 | 8,675             | 6,575 | 5,800 | 5,375           | 3,375 | 2,675 | 2,575             | 1,875 | 1,475 |
| 275   | 1,650             | 1,650 | 1,025               | 1,150 | 1,100              | 1,375 | 700                             | 950   | 1,650                             | 1,650 | 2,550                    | 2,550 | 8,675             | 6,575 | 5,800 | 5,375           | 3,375 | 2,675 | 2,550             | 1,875 | 1,475 |
| 250   | 1,650             | 1,650 | 1,025               | 1,150 | 1,100              | 1,400 | 725                             | 975   | 1,625                             | 1,625 | 2,550                    | 2,550 | 8,600             | 6,500 | 5,675 | 5,350           | 3,300 | 2,650 | 2,525             | 1,850 | 1,475 |
| 225   | 1,625             | 1,625 | 1,050               | 1,175 | 1,100              | 1,400 | 725                             | 975   | 1,625                             | 1,625 | 2,500                    | 2,500 | 8,000             | 6,225 | 5,425 | 5,100           | 3,200 | 2,575 | 2,500             | 1,850 | 1,500 |
| 200   | 1,625             | 1,625 | 1,050               | 1,175 | 1,100              | 1,400 | 725                             | 975   | 1,600                             | 1,600 | 2,500                    | 2,500 | 7,750             | 5,950 | 5,175 | 4,875           | 3,100 | 2,500 | 2,475             | 1,825 | 1,500 |
| 175   | 1,600             | 1,600 | 1,050               | 1,175 | 1,100              | 1,400 | 750                             | 975   | 1,600                             | 1,600 | 2,450                    | 2,450 | 7,500             | 5,675 | 4,925 | 4,650           | 2,975 | 2,400 | 2,450             | 1,825 | 1,500 |
| 150   | 1,575             | 1,575 | 1,050               | 1,175 | 1,125              | 1,400 | 750                             | 975   | 1,575                             | 1,575 | 2,450                    | 2,450 | 7,100             | 5,400 | 4,700 | 4,425           | 2,875 | 2,325 | 2,425             | 1,800 | 1,500 |
| 125   | 1,550             | 1,550 | 1,050               | 1,175 | 1,125              | 1,400 | 750                             | 975   | 1,550                             | 1,550 | 2,400                    | 2,400 | 6,750             | 5,100 | 4,450 | 4,200           | 2,775 | 2,250 | 2,400             | 1,800 | 1,500 |
| 100   | 1,525             | 1,525 | 1,050               | 1,175 | 1,125              | 1,400 | 750                             | 1,000 | 1,550                             | 1,550 | 2,400                    | 2,400 | 6,400             | 4,825 | 4,200 | 3,975           | 2,675 | 2,175 | 2,375             | 1,800 | 1,500 |
| 75    | 1,475             | 1,475 | 1,075               | 1,175 | 1,125              | 1,400 | 750                             | 1,000 | 1,525                             | 1,525 | 2,350                    | 2,350 | 6,050             | 4,550 | 3,950 | 3,725           | 2,550 | 2,100 | 2,350             | 1,800 | 1,500 |
| 50    | 1,425             | 1,425 | 1,075               | 1,175 | 1,125              | 1,400 | 750                             | 1,000 | 1,525                             | 1,525 | 2,300                    | 2,300 | 5,600             | 4,275 | 3,700 | 3,500           | 2,450 | 2,025 | 2,350             | 1,800 | 1,500 |
| 25    | 1,350             | 1,350 | 1,075               | 1,175 | 1,125              | 1,400 | 750                             | 1,000 | 1,500                             | 1,500 | 2,300                    | 2,300 | 5,300             | 4,025 | 3,475 | 3,300           | 2,350 | 1,950 | 2,325             | 1,800 | 1,500 |
| 0     | 1,300             | 1,300 | 1,075               | 1,175 | 1,125              | 1,400 | 750                             | 1,000 | 1,500                             | 1,500 | 2,300                    | 2,300 | 4,850             | 3,750 | 3,250 | 3,100           | 2,250 | 1,875 | 2,300             | 1,800 | 1,500 |

HOB<sub>fs</sub> = 111 mLow HOB<sub>min</sub> = 196 mHigh HOB<sub>min</sub> = 442 mHOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 3.6e.

# CASUALTY and DAMAGE Tables Long-Range Cannon

GOLF/50 KT

All figures in meters

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36            | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|---------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |               |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |               |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III   | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 1,350 |                               |                                  |                              |                                              |                                        |                                | 3,700           | 1,550                        |                              | 6,175                      |                          |            | 0-10          |            |                 |            | 0-800       |            |
| 1,300 |                               |                                  |                              |                                              |                                        |                                | 3,700           | 1,600                        |                              | 6,150                      |                          |            | 0-10          |            |                 |            | 0-850       |            |
| 1,250 |                               |                                  |                              |                                              |                                        |                                | 3,725           | 1,625                        |                              | 6,125                      |                          |            | 0-15          |            |                 |            | 0-950       |            |
| 1,200 |                               |                                  |                              |                                              |                                        |                                | 3,750           | 1,675                        | 0                            | 6,100                      |                          | 0          | 0-15          |            |                 | 0          | 0-1,000     |            |
| 1,150 |                               |                                  |                              |                                              |                                        |                                | 3,750           | 1,700                        | 300                          | 6,075                      |                          | 0-5        | 0-25          |            |                 | 0-50       | 0-1,050     |            |
| 1,100 |                               |                                  |                              | 0                                            |                                        |                                | 3,775           | 1,750                        | 450                          | 6,050                      |                          | 0-5        | 0-30          |            |                 | 0-350      | 0-1,100     |            |
| 1,050 |                               |                                  |                              | 25                                           |                                        |                                | 3,775           | 1,775                        | 550                          | 6,025                      |                          | 0-5        | 5-40          |            |                 | 0-500      | 50-1,150    |            |
| 1,000 |                               |                                  |                              | 175                                          |                                        |                                | 3,800           | 1,800                        | 650                          | 6,000                      |                          | 0-5        | 5-60          |            |                 | 0-600      | 350-1,200   |            |
| 950   |                               |                                  |                              | 300                                          |                                        |                                | 3,825           | 1,825                        | 725                          | 5,950                      |                          | 0-10       | 5-80          |            |                 | 0-650      | 500-1,250   |            |
| 900   |                               |                                  |                              | 425                                          |                                        | 0                              | 3,825           | 1,850                        | 775                          | 5,925                      |                          | 0-10       | 5-110         |            |                 | 0-750      | 550-1,300   |            |
| 850   | 0                             |                                  |                              | 550                                          |                                        | 1,175                          | 3,825           | 1,875                        | 825                          | 5,875                      | 0                        | 0-15       | 10-160        |            | 0               | 0-800      | 650-1,300   |            |
| 800   | 150                           |                                  |                              | 650                                          |                                        | 1,225                          | 3,850           | 1,900                        | 875                          | 5,850                      | 0-5                      | 0-20       | 10-230        |            | 0-50            | 0-850      | 700-1,350   |            |
| 775   | 225                           |                                  |                              | 700                                          |                                        | 1,225                          | 3,850           | 1,900                        | 900                          | 5,825                      | 0-5                      | 0-25       | 15-270        |            | 0-200           | 0-850      | 750-1,350   |            |
| 750   | 275                           |                                  |                              | 725                                          | 0                                      | 1,225                          | 3,850           | 1,925                        | 925                          | 5,800                      | 0-5                      | 0-30       | 15-330        |            | 0-300           | 0-900      | 750-1,400   |            |
| 725   | 350                           |                                  |                              | 775                                          | 800                                    | 1,225                          | 3,875           | 1,925                        | 950                          | 5,775                      | 0-5                      | 0-35       | 20-410        |            | 0-350           | 0-900      | 800-1,400   |            |
| 700   | 400                           |                                  | 0                            | 800                                          | 875                                    | 1,225                          | 3,875           | 1,925                        | 950                          | 5,750                      | 0-5                      | 5-45       | 20-500        |            | 0-400           | 50-950     | 800-1,400   |            |
| 675   | 475                           |                                  | 50                           | 850                                          | 900                                    | 1,225                          | 3,875           | 1,950                        | 975                          | 5,725                      | 0-10                     | 5-55       | 25-620        |            | 0-450           | 200-950    | 850-1,400   |            |
| 650   | 600                           | 0                                | 125                          | 875                                          | 900                                    | 1,225                          | 3,875           | 1,950                        | 975                          | 5,700                      | 0-10                     | 5-65       | 35-780        |            | 0-500           | 300-950    | 850-1,450   |            |
| 625   | 825                           | 25                               | 175                          | 900                                          | 925                                    | 1,250                          | 3,875           | 1,975                        | 1,025                        | 5,675                      | 0-10                     | 5-80       | 40-960        |            | 0-500           | 350-1,000  | 850-1,450   |            |
| 600   | 900                           | 50                               | 250                          | 925                                          | 925                                    | 1,250                          | 3,875           | 1,975                        | 1,025                        | 5,650                      | 0-15                     | 5-100      | 50-1,200      |            | 0-550           | 400-1,000  | 900-1,450   |            |
| 575   | 950                           | 100                              | 300                          | 950                                          | 925                                    | 1,250                          | 3,900           | 1,975                        | 1,050                        | 5,625                      | 0-15                     | 5-125      | 60-1,470      |            | 0-600           | 400-1,000  | 900-1,450   |            |
| 550   | 975                           | 150                              | 350                          | 975                                          | 950                                    | 1,250                          | 3,900           | 1,975                        | 1,050                        | 5,600                      | 0-20                     | 10-155     | 75-1,860      |            | 0-600           | 450-1,050  | 900-1,450   |            |
| 525   | 1,000                         | 200                              | 375                          | 1,000                                        | 950                                    | 1,250                          | 3,900           | 2,000                        | 1,075                        | 5,575                      | 0-25                     | 10-205     | 100-2,460     |            | 0-600           | 450-1,050  | 950-1,500   |            |
| 500   | 1,025                         | 225                              | 425                          | 1,000                                        | 950                                    | 1,250                          | 3,900           | 2,000                        | 1,075                        | 5,550                      | 5-30                     | 10-250     | 120-3,000     |            | 50-650          | 500-1,050  | 950-1,500   |            |
| 475   | 1,075                         | 275                              | 450                          | 1,025                                        | 950                                    | 1,250                          | 3,900           | 2,000                        | 1,100                        | 5,525                      | 5-45                     | 15-375     | 180-4,500     | 0          | 150-650         | 550-1,050  | 950-1,500   | 0          |
| 450   | 1,100                         | 325                              | 475                          | 1,050                                        | 950                                    | 1,250                          | 3,900           | 2,000                        | 1,100                        | 5,500                      | 5-55                     | 20-475     | 230-5,700     | 0-5        | 250-700         | 550-1,100  | 1,000-1,500 | 0-50       |
| 425   | 1,100                         | 350                              | 500                          | 1,075                                        | 975                                    | 1,250                          | 3,900           | 2,025                        | 1,100                        | 5,475                      | 5-70                     | 25-625     | 300-7,500     | 0-5        | 300-700         | 600-1,100  | 1,000-1,500 | 0-150      |
| 400   | 1,125                         | 400                              | 525                          | 1,100                                        | 975                                    | 1,250                          | 3,900           | 2,025                        | 1,125                        | 5,450                      | 5-90                     | 35-825     | 400-9,900     | 0-5        | 300-700         | 600-1,100  | 1,000-1,500 | 0-200      |
| 375   | 1,150                         | 450                              | 550                          | 1,100                                        | 1,000                                  | 1,250                          | 3,900           | 2,025                        | 1,125                        | 5,425                      | 5-120                    | 45-1,080   | 520-12,900    | 0-5        | 350-750         | 600-1,100  | 1,000-1,550 | 0-250      |
| 350   | 1,175                         | 500                              | 575                          | 1,125                                        | 1,000                                  | 1,250                          | 3,925           | 2,025                        | 1,125                        | 5,400                      | 10-150                   | 55-1,330   | 640-15,900    | 0-5        | 400-750         | 650-1,100  | 1,000-1,550 | 0-300      |
| 325   | 1,200                         | 575                              | 600                          | 1,150                                        | 1,000                                  | 1,250                          | 3,925           | 2,025                        | 1,150                        | 5,350                      | 10-190                   | 70-1,650   | 800-19,800    | 0-5        | 400-750         | 650-1,150  | 1,000-1,550 | 0-350      |
| 300   | 1,225                         | 650                              | 600                          | 1,175                                        | 1,025                                  | 1,250                          | 3,925           | 2,050                        | 1,150                        | 5,325                      | 10-215                   | 80-1,950   | 940-23,400    | 0-5        | 400-750         | 650-1,150  | 1,050-1,550 | 0-350      |
| 275   | 1,225                         | 675                              | 625                          | 1,175                                        | 1,025                                  | 1,250                          | 3,925           | 2,050                        | 1,150                        | 5,300                      | 15-260                   | 100-2,350  | 1,130-28,200  | 0-10       | 450-800         | 650-1,150  | 1,050-1,550 | 0-400      |
| 250   | 1,250                         | 700                              | 650                          | 1,200                                        | 1,025                                  | 1,250                          | 3,850           | 2,025                        | 1,150                        | 5,275                      | 15-310                   | 110-2,750  | 1,320-33,000  | 0-10       | 450-800         | 700-1,150  | 1,050-1,550 | 0-400      |
| 225   | 1,250                         | 725                              | 650                          | 1,200                                        | 1,050                                  | 1,250                          | 3,700           | 1,950                        | 1,125                        | 5,225                      | 15-360                   | 130-3,250  | 1,560-39,000  | 0-10       | 450-800         | 700-1,150  | 1,050-1,550 | 0-400      |
| 200   | 1,250                         | 725                              | 675                          | 1,225                                        | 1,050                                  | 1,250                          | 3,550           | 1,850                        | 1,075                        | 5,200                      | 20-500                   | 180-4,500  | 2,160-54,000  | 0-15       | 500-800         | 700-1,150  | 1,050-1,550 | 0-450      |
| 175   | 1,250                         | 750                              | 675                          | 1,225                                        | 1,075                                  | 1,250                          | 3,400           | 1,775                        | 1,025                        | 5,175                      | 25-610                   | 220-5,500  | 2,640-66,000  | 0-15       | 500-800         | 700-1,150  | 1,050-1,550 | 0-450      |
| 150   | 1,225                         | 750                              | 700                          | 1,225                                        | 1,075                                  | 1,225                          | 3,275           | 1,700                        | 975                          | 5,125                      | 35-770                   | 280-7,000  | 3,360-84,000  | 0-20       | 500-800         | 700-1,150  | 1,050-1,550 | 0-450      |
| 125   | 1,225                         | 750                              | 700                          | 1,200                                        | 1,050                                  | 1,225                          | 3,125           | 1,600                        | 950                          | 5,100                      | 45-1,020                 | 370-9,250  | 4,440-111,000 | 5-25       | 500-800         | 700-1,150  | 1,050-1,550 | 0-450      |
| 100   | 1,200                         | 725                              | 675                          | 1,175                                        | 1,025                                  | 1,200                          | 2,975           | 1,525                        | 900                          | 5,050                      | FALLOUT GOVERNS          |            |               |            |                 |            |             |            |
| 75    | 1,150                         | 725                              | 650                          | 1,150                                        | 975                                    | 1,150                          | 2,825           | 1,450                        | 850                          | 5,025                      |                          |            |               |            |                 |            |             |            |
| 50    | 1,075                         | 675                              | 600                          | 1,100                                        | 925                                    | 1,125                          | 2,675           | 1,375                        | 800                          | 5,000                      |                          |            |               |            |                 |            |             |            |
| 25    | 975                           | 650                              | 525                          | 1,025                                        | 875                                    | 1,075                          | 2,525           | 1,275                        | 750                          | 4,950                      |                          |            |               |            |                 |            |             |            |
| 0     | 825                           | 550                              | 450                          | 950                                          | 800                                    | 975                            | 2,375           | 1,200                        | 725                          | 4,925                      |                          |            |               |            |                 |            |             |            |

LRC 1

Figure 3.6e continued.

**CONTINGENT EFFECTS Tables**  
Long-Range Cannon

**INDUCED RADIATION IN SOILS (See note 1.)**  
Fallout activity is not significant.

| Yield<br>KT | HOB  | Estimated radii in meters of 2 rad/hr contour of induced radiation,<br>1 hour after burst (See note 2.) |                                 |                                      |                                                 | Estimated induced radiation intensity, 1 hour after<br>burst, at GZ in rad/hr (See note 2.) |              |               |              |
|-------------|------|---------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------|--------------|---------------|--------------|
|             |      | Soil type I<br>(Liberia, Africa)                                                                        | Soil type II<br>(Nevada desert) | Soil type III<br>(lava clay, Hawaii) | Soil type IV<br>(beach sand,<br>Pensacola, Fla) | Soil type I                                                                                 | Soil type II | Soil type III | Soil type IV |
| CHARLIE/2   | Low  | 100-500                                                                                                 | 350-700                         | 600-1,050                            | 0-50                                            | 5-80                                                                                        | 30-700       | 340-8,400     | 0-5          |
|             | High | 0-500                                                                                                   | 350-700                         | 600-1,050                            | 0                                               | 0-35                                                                                        | 15-280       | 140-3,400     | 0            |
| DELTA/5     | Low  | 200-550                                                                                                 | 450-800                         | 700-1,150                            | 0-150                                           | 10-160                                                                                      | 60-1,450     | 700-17,400    | 0-150        |
|             | High | 50-250                                                                                                  | 450-800                         | 700-1,150                            | 0                                               | 5-50                                                                                        | 20-450       | 220-5,400     | 0            |
| ECHO/10     | Low  | 300-600                                                                                                 | 500-900                         | 800-1,350                            | 0-250                                           | 15-320                                                                                      | 120-2,900    | 1,400-34,800  | 0-10         |
|             | High | 200-600                                                                                                 | 450-900                         | 800-1,350                            | 0-150                                           | 5-75                                                                                        | 30-650       | 320-7,800     | 0-5          |
| FOXTROT/20  | Low  | 350-750                                                                                                 | 600-1,100                       | 900-1,400                            | 0-300                                           | 20-500                                                                                      | 180-4,500    | 2,160-5,4000  | 0-15         |
|             | High | 200-700                                                                                                 | 550-1,000                       | 850-1,400                            | 0-50                                            | 5-90                                                                                        | 35-780       | 380-9,360     | 0-5          |
| GOLF/50     | Low  | 500-800                                                                                                 | 700-1,150                       | 1,050-1,550                          | 0-450                                           | 45-1,020                                                                                    | 370-9,250    | 4,440-111,000 | 0-25         |
|             | High | 300-700                                                                                                 | 600-1,100                       | 1,000-1,500                          | 0-200                                           | 5-90                                                                                        | 35-825       | 400-9,900     | 0-5          |

NOTES: 1. For description of chemical composition and effects of variations in chemical composition in soil types, See FM 101-31-1, app III, annex F.  
2. For range dependent delivery systems, intensities and 2 rad/hr contours are given for minimum ranges.

Figure 3.7a.

**TREE BLOWDOWN (See note.)**  
All distances in meters

| Yield<br><br><br><br>KT | OBSTACLES TO MOVEMENT                |            |             |            |                             |                    |                     | CASUALTIES TO<br>EXPOSED PERSONNEL |                    |                     |
|-------------------------|--------------------------------------|------------|-------------|------------|-----------------------------|--------------------|---------------------|------------------------------------|--------------------|---------------------|
|                         | Foot and wheeled<br>vehicle movement |            |             |            | Tracked vehicle<br>movement |                    |                     |                                    |                    |                     |
|                         | Type<br>I                            | Type<br>II | Type<br>III | Type<br>IV | Type<br>I                   | Types<br>II, IV(a) | Types<br>III, IV(a) | Type<br>I                          | Types<br>II, IV(a) | Types<br>III, IV(a) |
| CHARLIE/2               | 350                                  | 500        | 550         | 900        | 350                         | 500                | 550                 | 250                                | 400                | 400                 |
| DELTA/5                 | 600                                  | 800        | 900         | 1,400      | 600                         | 800                | 900                 | 400                                | 600                | 600                 |
| ECHO/10                 | 750                                  | 1,000      | 1,100       | 1,900      | 750                         | 1,000              | 1,100               | 600                                | 800                | 900                 |
| FOXTROT/20              | 1,050                                | 1,300      | 1,500       | 2,400      | 1,050                       | 1,300              | 1,500               | 750                                | 1,000              | 1,150               |
| GOLF/50                 | 1,650                                | 2,100      | 2,500       | 3,900      | 1,650                       | 2,100              | 2,500               | 1,200                              | 1,550              | 1,700               |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 3.7b.

**LIGHT AIRCRAFT IN FLIGHT (See note 1.)**

| Yield<br>KT | AIRCRAFT SAFETY RADII-meters<br>(See note 2.) |                       |                           |
|-------------|-----------------------------------------------|-----------------------|---------------------------|
|             | Light fixed<br>wing                           | Recon and<br>obsn hel | Transport and<br>util hel |
| CHARLIE/2   | 6,000                                         | 6,000                 | 5,000                     |
| DELTA/5     | 9,000                                         | 9,000                 | 7,000                     |
| ECHO/10     | 10,000                                        | 10,000                | 9,000                     |
| FOXTROT/20  | 13,000                                        | 13,000                | 11,000                    |
| GOLF/50     | 17,000                                        | 16,000                | 15,000                    |

NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.  
2. A buffer distance has been added to these radii of safety.

Figure 3.7c.



**CONTINGENT EFFECTS Tables (continued)**  
**Long-Range Cannon**

**FIRE AREAS (See note.)**

| Yield<br>KT | HOB | Expected radii for ignition of wildland fuels during fire season—meters |          |           |          |                                             |          |           |          |
|-------------|-----|-------------------------------------------------------------------------|----------|-----------|----------|---------------------------------------------|----------|-----------|----------|
|             |     | Dry climate (25 percent relative humidity)                              |          |           |          | Damp climate (75 percent relative humidity) |          |           |          |
|             |     | Class I                                                                 | Class II | Class III | Class IV | Class I                                     | Class II | Class III | Class IV |
| CHARLIE/2   | Air | 1,400                                                                   | 1,300    | 1,000     | 800      | 1,300                                       | 1,300    | 1,100     | 800      |
| DELTA/5     | Air | 2,000                                                                   | 1,800    | 1,700     | 1,400    | 1,800                                       | 1,800    | 1,500     | 1,100    |
| ECHO/10     | Air | 2,600                                                                   | 2,400    | 2,200     | 1,800    | 2,400                                       | 2,400    | 2,100     | 1,500    |
| FOXTROT/20  | Air | 3,400                                                                   | 3,200    | 2,900     | 2,400    | 3,200                                       | 3,200    | 2,700     | 2,000    |
| GOLF/50     | Air | 4,900                                                                   | 4,500    | 4,100     | 3,300    | 4,500                                       | 4,500    | 3,800     | 2,900    |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 3.7d.

LRC 1

**TACTICAL SYSTEM ACCURACY DATA**  
**Long-Range Cannon**

*All distances in meters*

| Range  | Equivalent CEP <sup>1</sup> | Probable errors |                 |                 | Offset distance (d <sub>o</sub> ) | Range  | Equivalent CEP <sup>1</sup> | Probable errors |                 |                 | Offset distance (d <sub>o</sub> ) |
|--------|-----------------------------|-----------------|-----------------|-----------------|-----------------------------------|--------|-----------------------------|-----------------|-----------------|-----------------|-----------------------------------|
|        |                             | PE <sub>R</sub> | PE <sub>d</sub> | PE <sub>h</sub> |                                   |        |                             | PE <sub>R</sub> | PE <sub>d</sub> | PE <sub>h</sub> |                                   |
| 3,000  | 21                          | 15              | 8               | 8               | 45                                | 19,000 | 132                         | 95              | 48              | 48              | 260                               |
| 4,000  | 28                          | 20              | 10              | 10              | 55                                | 20,000 | 138                         | 100             | 50              | 50              | 270                               |
| 5,000  | 35                          | 25              | 13              | 13              | 70                                | 21,000 | 145                         | 105             | 53              | 53              | 285                               |
| 6,000  | 42                          | 30              | 15              | 15              | 85                                | 22,000 | 152                         | 110             | 55              | 55              | 300                               |
| 7,000  | 49                          | 35              | 18              | 18              | 95                                | 23,000 | 159                         | 115             | 58              | 58              | 315                               |
| 8,000  | 56                          | 40              | 20              | 20              | 110                               | 24,000 | 166                         | 120             | 60              | 60              | 325                               |
| 9,000  | 63                          | 45              | 23              | 23              | 125                               | 25,000 | 173                         | 125             | 63              | 63              | 340                               |
| 10,000 | 69                          | 50              | 25              | 25              | 135                               | 26,000 | 180                         | 130             | 65              | 65              | 355                               |
| 11,000 | 76                          | 55              | 28              | 28              | 150                               | 27,000 | 187                         | 135             | 68              | 68              | 365                               |
| 12,000 | 83                          | 60              | 30              | 30              | 165                               | 28,000 | 194                         | 140             | 70              | 70              | 380                               |
| 13,000 | 90                          | 65              | 33              | 33              | 180                               | 29,000 | 201                         | 145             | 73              | 73              | 395                               |
| 14,000 | 97                          | 70              | 35              | 35              | 190                               | 30,000 | 207                         | 150             | 75              | 75              | 405                               |
| 15,000 | 104                         | 75              | 38              | 38              | 205                               |        |                             |                 |                 |                 |                                   |
| 16,000 | 111                         | 80              | 40              | 40              | 220                               |        |                             |                 |                 |                 |                                   |
| 17,000 | 118                         | 85              | 43              | 43              | 230                               |        |                             |                 |                 |                 |                                   |
| 18,000 | 125                         | 90              | 45              | 45              | 245                               |        |                             |                 |                 |                 |                                   |

<sup>1</sup>Equivalent CEP=  $1.2345 (PE_R^2 + PE_d^2)^{1/2}$ .

Figure 3.8.

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## CHAPTER 4

### SMALL FREE ROCKET

#### 4.1 GENERAL

a. *Orientation.* This chapter contains employment data for the small free rocket with its associated warhead sections fired from a mobile launcher.

b. *Weapon characteristics.*

(1) *Yields.* The warhead sections for the small free rocket have yields of Alfa/0.5 KT, Bravo/1 KT, Charlie/2 KT, Delta/5 KT, and Echo/10 KT.

(2) *Fuzing.* The fuzing for the small free rocket provides airburst and impact fuzing options. The airburst option is fuzed by time fuzes which are set for the desired time of flight by the delivery unit. Setting the fuze for airburst precludes the use of the impact fuzing system as a backup.

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The minimum and maximum ranges of the small free rocket are 3,000 meters and 25,000 meters.

(2) *Tactical system accuracy.* The horizontal and vertical dispersion errors for the small free rocket are dependent on range. Tactical system accuracy data are contained in figure 4.8.

(3) *Unit carrying capacity.* A small free rocket unit can draw, transport, and store at any one time a total of 25 complete rounds per battalion.

(4) *Response time.* The times shown below can be used as a basis for general tactical planning. They are considered to be applicable to a reasonably well-trained unit operating in daylight under favorable weather conditions. Blackout operations, unfavorable weather, enemy interference, equipment breakdown, or faulty test indications will extend the times listed. *For detailed tactical planning, the response times should be the actual times obtained from the artillery unit concerned.*

| Situation       | Time (minutes) | Remarks                                                                                                                           |
|-----------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| I <sup>1</sup>  | 30             | For situation I, add 20 minutes if warhead section must be removed and a new warhead section with required yield mated to rocket. |
| II <sup>2</sup> | 5              |                                                                                                                                   |

<sup>1</sup> Situation (high readiness)—the complete round and launcher are in a firing position and survey is completed. Preliminary firing data for a specific target are not available. Pre-fire checkouts which can be performed prior to the receipt of a fire mission have been completed. (May be used to engage targets of opportunity within range.)

<sup>2</sup> Situation II (maximum readiness)—firing data for a specific target have been computed and applied to the weapon system. The unit is awaiting an order to fire. (Typical of readiness to engage on-call target.)

(5) *Special considerations.* The target analyst needs no special information from the unit fire direction center for target analysis. For an airburst, the fire mission to the unit includes the desired height of burst in meters. For a contact surface burst, an impact option is requested.

SFR 1

# **EXPOSED Personnel Targets** **Small Free Rocket**

**LOW Airburst**  
**Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 300                                                                                                                                                                    | 400   | 500   | 600   | 700   | 800   | 900   | 1,000 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400                                      | 650     | 85                                      | 77                                |
| 4,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400                                      | 650     | 110                                     | 94                                |
| 5,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400                                      | 650     | 135                                     | 112                               |
| 6,000             | 1,600                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                      | 650     | 165                                     | 129                               |
| 7,000             | 1,600                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                      | 625     | 190                                     | 147                               |
| 8,000             | 1,700                                                                      | .7/.9                                                                                                                                                                  | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350                                      | 625     | 220                                     | 164                               |
| 9,000             | 1,700                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                      | 600     | 245                                     | 182                               |
| 10,000            | 1,700                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                      | 600     | 270                                     | 199                               |
| 11,000            | 1,700                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 275                                      | 575     | 300                                     | 217                               |
| 12,000            | 1,700                                                                      | .4/.7                                                                                                                                                                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 250                                      | 575     | 325                                     | 234                               |
| 13,000            | 1,700                                                                      | .2/.6                                                                                                                                                                  | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 200                                      | 550     | 355                                     | 252                               |
| 14,000            | 1,800                                                                      | .1/.6                                                                                                                                                                  | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .7/.9                  | .5/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 |       | 150                                      | 525     | 380                                     | 269                               |
| 15,000            | 1,800                                                                      | .0/.6                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .7/.9                  | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 0                                        | 500     | 405                                     | 287                               |
| 16,000            | 1,800                                                                      | .0/.6                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .6/.8                  | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 0                                        | 475     | 435                                     | 304                               |
| 17,000            | 1,800                                                                      | .0/.6                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .5/.8                  | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | 0                                        | 450     | 460                                     | 322                               |
| 18,000            | 1,800                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | .5/.8                  | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 425     | 490                                     | 339                               |
| 19,000            | 1,800                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .4/.7                  | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 400     | 515                                     | 357                               |
| 20,000            | 1,900                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .3/.7                  | .3/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 350     | 540                                     | 374                               |
| 21,000            | 1,900                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .2/.6                  | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 300     | 570                                     | 392                               |
| 22,000            | 1,900                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .2/.6                  | .1/.5 | .1/.4 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 250     | 595                                     | 409                               |
| 23,000            | 1,900                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .1/.6                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 150     | 625                                     | 427                               |
| 24,000            | 1,900                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 650                                     | 444                               |
| 25,000            | 1,900                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                                        | 0       | 675                                     | 462                               |

Figure 4.1a(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 200                                                                                                                                                                    | 300   | 400   | 500   | 600   | 700   | 800   | 900   | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400                                      | 650     | 85                                      | 137                               |
| 4,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                      | 625     | 110                                     | 154                               |
| 5,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                      | 625     | 135                                     | 172                               |
| 6,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350                                      | 625     | 165                                     | 189                               |
| 7,000             | 1,600                                                                      | .8/.9                                                                                                                                                                  | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                      | 600     | 190                                     | 207                               |
| 8,000             | 1,600                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                      | 600     | 220                                     | 224                               |
| 9,000             | 1,700                                                                      | .7/.9                                                                                                                                                                  | .5/.8 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.2 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 275                                      | 575     | 245                                     | 242                               |
| 10,000            | 1,700                                                                      | .5/.8                                                                                                                                                                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 225                                      | 575     | 270                                     | 259                               |
| 11,000            | 1,700                                                                      | .4/.7                                                                                                                                                                  | .3/.6 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .8/.9                  | .6/.8 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 |       | 200                                      | 550     | 300                                     | 277                               |
| 12,000            | 1,700                                                                      | .2/.7                                                                                                                                                                  | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | .8/.9                  | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 |       | 125                                      | 525     | 325                                     | 294                               |
| 13,000            | 1,700                                                                      | .0/.7                                                                                                                                                                  | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .7/.9                  | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | 0                                        | 500     | 355                                     | 312                               |
| 14,000            | 1,700                                                                      | .0/.6                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .7/.9                  | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | 0                                        | 475     | 380                                     | 329                               |
| 15,000            | 1,800                                                                      | .0/.6                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | .6/.8                  | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | 0                                        | 450     | 405                                     | 347                               |
| 16,000            | 1,800                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .5/.8                  | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 425     | 435                                     | 364                               |
| 17,000            | 1,800                                                                      | .0/.5                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .4/.7                  | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       |       | 0                                        | 375     | 460                                     | 382                               |
| 18,000            | 1,800                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .4/.7                  | .3/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 350     | 490                                     | 399                               |
| 19,000            | 1,800                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .3/.7                  | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 300     | 515                                     | 417                               |
| 20,000            | 1,800                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .2/.6                  | .2/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 225     | 540                                     | 434                               |
| 21,000            | 1,900                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .1/.6                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 125     | 570                                     | 452                               |
| 22,000            | 1,900                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 595                                     | 469                               |
| 23,000            | 1,900                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 625                                     | 487                               |
| 24,000            | 1,900                                                                      | .0/.2                                                                                                                                                                  | .0/.2 |       |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 650                                     | 504                               |
| 25,000            | 1,900                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                                        | 0       | 675                                     | 522                               |

Figure 4.1a(2).

**EXPOSED Personnel Targets  
Small Free Rocket**

**ALFA/.5 KT**

**IMPACT Burst  
Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 300                                                                                                                                                                    | 400   | 500   | 600   | 700   | 800   | 900   | 1,000 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 85                                               | 0                                 |
| 4,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 110                                              | 0                                 |
| 5,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 135                                              | 0                                 |
| 6,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 165                                              | 0                                 |
| 7,000             | 1,600                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 190                                              | 0                                 |
| 8,000             | 1,700                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 220                                              | 0                                 |
| 9,000             | 1,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 245                                              | 0                                 |
| 10,000            | 1,700                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 270                                              | 0                                 |
| 11,000            | 1,700                                                                                   | .7/.9                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 300                                              | 0                                 |
| 12,000            | 1,700                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 325                                              | 0                                 |
| 13,000            | 1,700                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 355                                              | 0                                 |
| 14,000            | 1,800                                                                                   | .5/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 380                                              | 0                                 |
| 15,000            | 1,800                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 405                                              | 0                                 |
| 16,000            | 1,800                                                                                   | .4/.8                                                                                                                                                                  | .4/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 435                                              | 0                                 |
| 17,000            | 1,800                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.9                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 460                                              | 0                                 |
| 18,000            | 1,800                                                                                   | .4/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 490                                              | 0                                 |
| 19,000            | 1,800                                                                                   | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.9                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 515                                              | 0                                 |
| 20,000            | 1,900                                                                                   | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .2/.2 | .1/.2 | .6/.9                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 540                                              | 0                                 |
| 21,000            | 1,900                                                                                   | .2/.6                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .6/.8                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.1 | .1/.1 | 425                                               | 675     | 570                                              | 0                                 |
| 22,000            | 1,900                                                                                   | .2/.6                                                                                                                                                                  | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .6/.8                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 595                                              | 0                                 |
| 23,000            | 1,900                                                                                   | .2/.6                                                                                                                                                                  | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .5/.8                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 625                                              | 0                                 |
| 24,000            | 1,900                                                                                   | .1/.6                                                                                                                                                                  | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .5/.8                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 650                                              | 0                                 |
| 25,000            | 2,000                                                                                   | .1/.5                                                                                                                                                                  | .1/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .5/.8                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                               | 675     | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.1a(3).

SFR 1

# EXPOSED Personnel Targets Small Free Rocket

LOW Airburst  
Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |      |      |      |      |       |       |       |                        |      |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|-------|-------|-------|------------------------|------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |      |      |      |      |       |       |       | DELAYED CASUALTIES     |      |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |      |      |      |      |       |       |       | Target radius (meters) |      |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 500                                                                                                                                                                    | 600  | 700  | 800  | 900  | 1,000 | 1,100 | 1,200 | 600                    | 800  | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 1,800                                                                      | .8/9                                                                                                                                                                   | .7/8 | .6/6 | .4/5 | .3/4 | .3/3  | .2/3  | .2/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 575                                      | 775     | 85                                      | 83                                |
| 4,000             | 1,800                                                                      | .8/9                                                                                                                                                                   | .7/8 | .6/6 | .4/5 | .3/4 | .2/3  | .2/3  | .2/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 775     | 110                                     | 100                               |
| 5,000             | 1,800                                                                      | .8/9                                                                                                                                                                   | .7/8 | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .2/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 775     | 135                                     | 118                               |
| 6,000             | 1,800                                                                      | .8/9                                                                                                                                                                   | .6/8 | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 550                                      | 750     | 165                                     | 135                               |
| 7,000             | 1,800                                                                      | .8/9                                                                                                                                                                   | .6/7 | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .1/2  | .9/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 525                                      | 750     | 190                                     | 153                               |
| 8,000             | 1,900                                                                      | .7/8                                                                                                                                                                   | .6/7 | .5/6 | .4/5 | .3/4 | .2/3  | .2/3  | .1/2  | .8/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/2  | 525                                      | 750     | 220                                     | 170                               |
| 9,000             | 1,900                                                                      | .7/8                                                                                                                                                                   | .6/7 | .4/6 | .3/5 | .3/4 | .2/3  | .2/2  | .1/2  | .8/9                   | .7/8 | .5/6  | .3/4  | .2/3  | .2/2  | .1/2  | .1/1  | 500                                      | 725     | 245                                     | 188                               |
| 10,000            | 1,900                                                                      | .6/8                                                                                                                                                                   | .5/7 | .4/5 | .3/4 | .2/4 | .2/3  | .1/2  | .1/2  | .8/9                   | .6/8 | .5/6  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 500                                      | 725     | 270                                     | 205                               |
| 11,000            | 1,900                                                                      | .6/8                                                                                                                                                                   | .5/6 | .4/5 | .3/4 | .2/3 | .2/3  | .1/2  | .1/2  | .8/9                   | .6/7 | .4/5  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 475                                      | 725     | 300                                     | 223                               |
| 12,000            | 1,900                                                                      | .6/7                                                                                                                                                                   | .5/6 | .4/5 | .3/4 | .2/3 | .2/3  | .1/2  | .1/2  | .8/9                   | .6/7 | .4/5  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 450                                      | 700     | 325                                     | 240                               |
| 13,000            | 1,900                                                                      | .5/7                                                                                                                                                                   | .4/6 | .3/5 | .2/4 | .2/3 | .1/3  | .1/2  | .1/2  | .7/9                   | .6/7 | .4/5  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 425                                      | 675     | 355                                     | 258                               |
| 14,000            | 2,000                                                                      | .5/7                                                                                                                                                                   | .4/6 | .3/5 | .2/4 | .2/3 | .1/3  | .1/2  | .1/2  | .7/9                   | .5/7 | .4/5  | .3/4  | .2/3  | .1/2  | .1/2  | .1/1  | 400                                      | 675     | 380                                     | 275                               |
| 15,000            | 2,000                                                                      | .5/7                                                                                                                                                                   | .4/6 | .3/5 | .2/4 | .2/3 | .1/2  | .1/2  | .0/2  | .7/8                   | .5/7 | .4/5  | .2/4  | .2/3  | .1/2  | .1/2  | .1/1  | 375                                      | 650     | 405                                     | 293                               |
| 16,000            | 2,000                                                                      | .3/6                                                                                                                                                                   | .3/5 | .2/4 | .1/3 | .1/3 | .1/2  | .0/2  | .0/2  | .6/8                   | .5/7 | .3/5  | .2/4  | .2/3  | .1/2  | .1/2  | .1/1  | 350                                      | 625     | 435                                     | 310                               |
| 17,000            | 2,000                                                                      | .3/6                                                                                                                                                                   | .2/5 | .1/4 | .1/3 | .1/3 | .0/2  | .0/2  | .0/1  | .6/8                   | .5/6 | .3/5  | .2/3  | .1/3  | .1/2  | .1/2  | .0/1  | 300                                      | 625     | 460                                     | 328                               |
| 18,000            | 2,000                                                                      | .2/5                                                                                                                                                                   | .1/4 | .1/4 | .1/3 | .0/2 | .0/2  | .0/2  | .0/1  | .6/8                   | .4/6 | .3/5  | .2/3  | .1/3  | .1/2  | .1/2  | .0/1  | 250                                      | 600     | 490                                     | 345                               |
| 19,000            | 2,000                                                                      | .1/5                                                                                                                                                                   | .0/4 | .0/3 | .0/2 | .0/2 | .0/2  | .0/1  |       | .5/7                   | .4/6 | .3/4  | .2/3  | .1/2  | .1/2  | .0/1  |       | 200                                      | 575     | 515                                     | 363                               |
| 20,000            | 2,100                                                                      | .0/5                                                                                                                                                                   | .0/3 | .0/3 | .0/2 | .0/2 | .0/1  |       |       | .5/7                   | .4/6 | .3/4  | .2/3  | .1/2  | .1/2  | .0/1  |       | 75                                       | 550     | 540                                     | 380                               |
| 21,000            | 2,100                                                                      | .0/4                                                                                                                                                                   | .0/3 | .0/3 | .0/2 | .0/2 | .0/1  |       |       | .4/7                   | .3/5 | .2/4  | .1/3  | .1/2  | .1/2  | .0/1  |       | 0                                        | 500     | 570                                     | 398                               |
| 22,000            | 2,100                                                                      | .0/4                                                                                                                                                                   | .0/3 | .0/2 | .0/2 | .0/2 | .0/1  |       |       | .4/7                   | .3/5 | .2/4  | .1/3  | .1/2  | .0/2  | .0/1  |       | 0                                        | 475     | 595                                     | 415                               |
| 23,000            | 2,100                                                                      | .0/4                                                                                                                                                                   | .0/3 | .0/2 | .0/2 | .0/1 |       |       |       | .3/6                   | .2/5 | .2/4  | .1/3  | .0/2  | .0/2  | .0/1  |       | 0                                        | 450     | 625                                     | 433                               |
| 24,000            | 2,100                                                                      | .0/3                                                                                                                                                                   | .0/3 | .0/2 | .0/2 | .0/1 |       |       |       | .3/6                   | .2/5 | .1/4  | .1/3  | .0/2  | .0/2  | .0/1  |       | 0                                        | 400     | 650                                     | 450                               |
| 25,000            | 2,100                                                                      | .0/3                                                                                                                                                                   | .0/2 | .0/2 | .0/2 | .0/1 |       |       |       | .2/6                   | .2/4 | .1/3  | .0/3  | .0/2  | .0/1  |       |       | 0                                        | 350     | 675                                     | 468                               |

Figure 4.1b(1).

HIGH Airburst  
Reduces intensity of induced contamination. Precludes fallout.

| Range<br><br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-----------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                       |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                       |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                       |                                                                            | 400                                                                                                                                                                    | 500   | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                   | Delayed |                                         |                                   |
| 3,000                 | 1,800                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                      | 775     | 85                                      | 158                               |
| 4,000                 | 1,800                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525                                      | 750     | 110                                     | 175                               |
| 5,000                 | 1,800                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525                                      | 750     | 135                                     | 193                               |
| 6,000                 | 1,800                                                                      | .9/.9                                                                                                                                                                  | .7/.9 | .6/.7 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 500                                      | 750     | 165                                     | 210                               |
| 7,000                 | 1,800                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.6 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 500                                      | 725     | 190                                     | 228                               |
| 8,000                 | 1,900                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 475                                      | 725     | 220                                     | 245                               |
| 9,000                 | 1,900                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 450                                      | 700     | 245                                     | 263                               |
| 10,000                | 1,900                                                                      | .7/.9                                                                                                                                                                  | .6/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 425                                      | 700     | 270                                     | 280                               |
| 11,000                | 1,900                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 400                                      | 675     | 300                                     | 298                               |
| 12,000                | 1,900                                                                      | .6/.8                                                                                                                                                                  | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 375                                      | 650     | 325                                     | 315                               |
| 13,000                | 1,900                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 350                                      | 650     | 355                                     | 333                               |
| 14,000                | 1,900                                                                      | .4/.7                                                                                                                                                                  | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | .8/.9                  | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 300                                      | 625     | 380                                     | 350                               |
| 15,000                | 2,000                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.2 | .8/.9                  | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | 275                                      | 600     | 405                                     | 368                               |
| 16,000                | 2,000                                                                      | .2/.6                                                                                                                                                                  | .2/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .7/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 200                                      | 575     | 435                                     | 385                               |
| 17,000                | 2,000                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .7/.9                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 100                                      | 530     | 460                                     | 403                               |
| 18,000                | 2,000                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .6/.9                  | .5/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 0                                        | 525     | 490                                     | 420                               |
| 19,000                | 2,000                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .6/.8                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0                                        | 475     | 515                                     | 438                               |
| 20,000                | 2,000                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .5/.8                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0                                        | 450     | 540                                     | 455                               |
| 21,000                | 2,100                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | .4/.8                  | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .0/.2 | .0/.1 |       | 0                                        | 400     | 570                                     | 473                               |
| 22,000                | 2,100                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | .3/.7                  | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 350     | 595                                     | 490                               |
| 23,000                | 2,100                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .2/.7                  | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 300     | 625                                     | 508                               |
| 24,000                | 2,100                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .1/.6                  | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 225     | 650                                     | 525                               |
| 25,000                | 2,100                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .0/.6                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 100     | 675                                     | 543                               |

Figure 4.1b(2).

# **EXPOSED Personnel Targets** **Small Free Rocket**

**BRAVO/1 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |  |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |  | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |  | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 |  | 600                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 1,800                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 85                                               | 0                                 |
| 4,000             | 1,800                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 110                                              | 0                                 |
| 5,000             | 1,800                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 135                                              | 0                                 |
| 6,000             | 1,800                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 165                                              | 0                                 |
| 7,000             | 1,800                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 190                                              | 0                                 |
| 8,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 220                                              | 0                                 |
| 9,000             | 1,900                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 245                                              | 0                                 |
| 10,000            | 1,900                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 270                                              | 0                                 |
| 11,000            | 1,900                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 300                                              | 0                                 |
| 12,000            | 1,900                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 325                                              | 0                                 |
| 13,000            | 1,900                                                                                   | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .8/.9                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 355                                              | 0                                 |
| 14,000            | 2,000                                                                                   | .7/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .8/.9                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 380                                              | 0                                 |
| 15,000            | 2,000                                                                                   | .7/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .8/.9                  | .6/.7 | .5/.6 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 405                                              | 0                                 |
| 16,000            | 2,000                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .7/.9                  | .6/.7 | .5/.6 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 435                                              | 0                                 |
| 17,000            | 2,000                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .7/.9                  | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 460                                              | 0                                 |
| 18,000            | 2,000                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .7/.9                  | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 490                                              | 0                                 |
| 19,000            | 2,100                                                                                   | .5/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .7/.8                  | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 515                                              | 0                                 |
| 20,000            | 2,100                                                                                   | .5/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 540                                              | 0                                 |
| 21,000            | 2,100                                                                                   | .5/.8                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 570                                              | 0                                 |
| 22,000            | 2,100                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 595                                              | 0                                 |
| 23,000            | 2,100                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 625                                              | 0                                 |
| 24,000            | 2,100                                                                                   | .4/.7                                                                                                                                                                  | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 650                                              | 0                                 |
| 25,000            | 2,200                                                                                   | .3/.7                                                                                                                                                                  | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .5/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                               | 775     | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.1b(3).

SFR 1

<sup>1</sup>Small Free Rocket.

**EXPOSED Personnel Targets**  
**Small Free Rocket**

**LOW Airburst**  
**Procludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>·R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                    |         |                                                  |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                    |         |                                                  |                                   |
|                   |                                                                            | 600                                                                                                                                                                    | 700   | 800   | 900   | 1,000 | 1,100 | 1,200 | 1,300 | 800                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt                                             | Delayed |                                                  |                                   |
| 3,000             | 2,300                                                                      | .8/.8                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .8/.9                  | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                                | 875     | 85                                               | 91                                |
| 4,000             | 2,300                                                                      | .8/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                                | 875     | 110                                              | 108                               |
| 5,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 600                                                | 875     | 135                                              | 126                               |
| 6,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                                | 875     | 165                                              | 143                               |
| 7,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                                | 850     | 190                                              | 161                               |
| 8,000             | 2,400                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575                                                | 850     | 220                                              | 178                               |
| 9,000             | 2,400                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550                                                | 850     | 245                                              | 196                               |
| 10,000            | 2,400                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 550                                                | 825     | 270                                              | 213                               |
| 11,000            | 2,400                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 525                                                | 825     | 300                                              | 231                               |
| 12,000            | 2,400                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 500                                                | 825     | 325                                              | 248                               |
| 13,000            | 2,400                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 475                                                | 800     | 355                                              | 266                               |
| 14,000            | 2,500                                                                      | .4/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .7/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 450                                                | 775     | 380                                              | 283                               |
| 15,000            | 2,500                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .6/.8                  | .5/.6 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 425                                                | 775     | 405                                              | 301                               |
| 16,000            | 2,500                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .6/.8                  | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400                                                | 750     | 435                                              | 318                               |
| 17,000            | 2,500                                                                      | .3/.5                                                                                                                                                                  | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .6/.8                  | .4/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                                | 750     | 460                                              | 336                               |
| 18,000            | 2,500                                                                      | .2/.5                                                                                                                                                                  | .2/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .0/.1 | .6/.7                  | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                                | 725     | 490                                              | 353                               |
| 19,000            | 2,500                                                                      | .2/.5                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | .0/.1 | .5/.7                  | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 275                                                | 700     | 515                                              | 371                               |
| 20,000            | 2,600                                                                      | .1/.4                                                                                                                                                                  | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | .5/.7                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | 225                                                | 675     | 540                                              | 388                               |
| 21,000            | 2,600                                                                      | .1/.4                                                                                                                                                                  | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | .5/.7                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | 125                                                | 650     | 570                                              | 406                               |
| 22,000            | 2,600                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | .4/.7                  | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.2 | .0/.1 | 0                                                  | 625     | 595                                              | 423                               |
| 23,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | .4/.6                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 |       | 0                                                  | 600     | 625                                              | 441                               |
| 24,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | .4/.6                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                                  | 575     | 650                                              | 458                               |
| 25,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .3/.6                  | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                                  | 525     | 675                                              | 476                               |

Figure 4.1c(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Procludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 500                                                                                                                                                                    | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 1,200 | 600                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 2,300                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575                                      | 875     | 85                                      | 185                               |
| 4,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 575                                      | 850     | 110                                     | 202                               |
| 5,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                      | 850     | 135                                     | 220                               |
| 6,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                      | 850     | 165                                     | 237                               |
| 7,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525                                      | 825     | 190                                     | 255                               |
| 8,000             | 2,400                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 525                                      | 825     | 220                                     | 272                               |
| 9,000             | 2,400                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .9/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 500                                      | 800     | 245                                     | 290                               |
| 10,000            | 2,400                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 475                                      | 800     | 270                                     | 307                               |
| 11,000            | 2,400                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 450                                      | 775     | 300                                     | 325                               |
| 12,000            | 2,400                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .8/.9                  | .7/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 425                                      | 775     | 325                                     | 342                               |
| 13,000            | 2,400                                                                      | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .8/.9                  | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 400                                      | 750     | 355                                     | 360                               |
| 14,000            | 2,500                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .2/.4 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .8/.9                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 350                                      | 725     | 380                                     | 370                               |
| 15,000            | 2,500                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .7/.9                  | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 300                                      | 700     | 405                                     | 395                               |
| 16,000            | 2,500                                                                      | .2/.6                                                                                                                                                                  | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .7/.9                  | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 250                                      | 700     | 435                                     | 412                               |
| 17,000            | 2,500                                                                      | .2/.5                                                                                                                                                                  | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .7/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 175                                      | 675     | 460                                     | 430                               |
| 18,000            | 2,500                                                                      | .1/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .6/.8                  | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 50                                       | 650     | 490                                     | 447                               |
| 19,000            | 2,500                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | .6/.8                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 0                                        | 600     | 515                                     | 465                               |
| 20,000            | 2,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .5/.8                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 0                                        | 575     | 540                                     | 482                               |
| 21,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .5/.7                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0                                        | 550     | 570                                     | 500                               |
| 22,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .4/.7                  | .3/.6 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0                                        | 525     | 595                                     | 517                               |
| 23,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .4/.7                  | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | .0/.1 | 0                                        | 475     | 625                                     | 535                               |
| 24,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .3/.7                  | .2/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 425     | 650                                     | 552                               |
| 25,000            | 2,600                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .3/.6                  | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 375     | 675                                     | 570                               |

Figure 4.1c(2).



**EXPOSED Personnel Targets  
Small Free Rocket**

**CHARLIE/2 KT**

**IMPACT Burst  
Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>0</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 800                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 85                                               | 0                                 |
| 4,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 110                                              | 0                                 |
| 5,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 135                                              | 0                                 |
| 6,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 165                                              | 0                                 |
| 7,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 190                                              | 0                                 |
| 8,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 220                                              | 0                                 |
| 9,000             | 2,000                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 245                                              | 0                                 |
| 10,000            | 2,000                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 270                                              | 0                                 |
| 11,000            | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.1 | 625                                               | 900     | 300                                              | 0                                 |
| 12,000            | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 325                                              | 0                                 |
| 13,000            | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 355                                              | 0                                 |
| 14,000            | 2,100                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 380                                              | 0                                 |
| 15,000            | 2,100                                                                                   | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 405                                              | 0                                 |
| 16,000            | 2,100                                                                                   | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 435                                              | 0                                 |
| 17,000            | 2,100                                                                                   | .7/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 460                                              | 0                                 |
| 18,000            | 2,100                                                                                   | .6/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 490                                              | 0                                 |
| 19,000            | 2,100                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 515                                              | 0                                 |
| 20,000            | 2,200                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 540                                              | 0                                 |
| 21,000            | 2,200                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 570                                              | 0                                 |
| 22,000            | 2,200                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 595                                              | 0                                 |
| 23,000            | 2,200                                                                                   | .5/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 625                                              | 0                                 |
| 24,000            | 2,200                                                                                   | .4/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 650                                              | 0                                 |
| 25,000            | 2,200                                                                                   | .4/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 900     | 675                                              | 0                                 |

SFR 1

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.1c(3).

**EXPOSED Personnel Targets  
Small Free Rocket**

**LOW Airburst  
Precludes fallout**

| Range<br><br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |  |  | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-----------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|--|--|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                       |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |  |  |                                          |         |                                         |                                   |
|                       |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |  |  |                                          |         |                                         |                                   |
|                       |                                                                            | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 |  |  | Prompt                                   | Delayed |                                         |                                   |
| 3,000                 | 3,300                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 775                                      | 1,025   | 85                                      | 105                               |
| 4,000                 | 3,300                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 775                                      | 1,025   | 110                                     | 122                               |
| 5,000                 | 3,300                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 775                                      | 1,025   | 135                                     | 140                               |
| 6,000                 | 3,400                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 775                                      | 1,025   | 165                                     | 157                               |
| 7,000                 | 3,400                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 750                                      | 1,025   | 190                                     | 175                               |
| 8,000                 | 3,400                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 750                                      | 1,000   | 220                                     | 192                               |
| 9,000                 | 3,400                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 750                                      | 1,000   | 245                                     | 210                               |
| 10,000                | 3,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 725                                      | 1,000   | 270                                     | 227                               |
| 11,000                | 3,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 725                                      | 975     | 300                                     | 245                               |
| 12,000                | 3,500                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 700                                      | 975     | 325                                     | 262                               |
| 13,000                | 3,500                                                                      | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 675                                      | 975     | 355                                     | 280                               |
| 14,000                | 3,500                                                                      | .7/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 675                                      | 950     | 380                                     | 297                               |
| 15,000                | 3,500                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 650                                      | 950     | 405                                     | 315                               |
| 16,000                | 3,500                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 |       | .8/.9                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  |  | 625                                      | 925     | 435                                     | 332                               |
| 17,000                | 3,500                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.1 |       | .7/.9                  | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  |  | 600                                      | 900     | 460                                     | 350                               |
| 18,000                | 3,600                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .7/.9                  | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 |  |  | 575                                      | 900     | 490                                     | 367                               |
| 19,000                | 3,600                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | .7/.8                  | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |  |  | 550                                      | 875     | 515                                     | 385                               |
| 20,000                | 3,600                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | .7/.8                  | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |  |  | 525                                      | 850     | 540                                     | 402                               |
| 21,000                | 3,600                                                                      | .4/.7                                                                                                                                                                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 |       | .6/.8                  | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |  |  | 500                                      | 850     | 570                                     | 420                               |
| 22,000                | 3,600                                                                      | .4/.7                                                                                                                                                                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .6/.8                  | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  |  | 475                                      | 825     | 595                                     | 437                               |
| 23,000                | 3,600                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .6/.8                  | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  |  | 425                                      | 800     | 625                                     | 455                               |
| 24,000                | 3,700                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .1/.3 | .1/.3 | .0/.2 | .0/.1 |       |       | .5/.8                  | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  |  | 375                                      | 775     | 650                                     | 472                               |
| 25,000                | 3,700                                                                      | .2/.6                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       |       | .5/.7                  | .3/.5 | .2/.3 | .1/.2 | .0/.1 |       |  |  | 325                                      | 750     | 675                                     | 490                               |

Figure 4.1d(1).

**HIGH Airburst  
Reduces intensity of induced contamination. Precludes fallout.**

| Range<br><br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |  | Probable<br>minimum<br>R <sub>D</sub><br><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-----------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|-------------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                       |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |  |                                                       |         |                                                  |                                   |
|                       |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |  |                                                       |         |                                                  |                                   |
|                       |                                                                            | 500                                                                                                                                                                    | 700   | 900   | 1,100 | 1,300 | 1,500 | 1,700 | 1,900 | 400                    | 800   | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 |  | Prompt                                                | Delayed |                                                  |                                   |
| 3,000                 | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  | 750                                                   | 1,000   | 85                                               | 233                               |
| 4,000                 | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  | 750                                                   | 1,000   | 110                                              | 250                               |
| 5,000                 | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  | 725                                                   | 1,000   | 135                                              | 268                               |
| 6,000                 | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  | 725                                                   | 975     | 165                                              | 285                               |
| 7,000                 | 3,400                                                                      | .9/.9                                                                                                                                                                  | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  | 700                                                   | 975     | 190                                              | 303                               |
| 8,000                 | 3,400                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  | 700                                                   | 975     | 220                                              | 320                               |
| 9,000                 | 3,400                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  | 675                                                   | 950     | 245                                              | 338                               |
| 10,000                | 3,400                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 650                                                   | 950     | 270                                              | 355                               |
| 11,000                | 3,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 625                                                   | 925     | 300                                              | 373                               |
| 12,000                | 3,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 625                                                   | 925     | 325                                              | 390                               |
| 13,000                | 3,500                                                                      | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 |  | 600                                                   | 900     | 355                                              | 408                               |
| 14,000                | 3,500                                                                      | .7/.9                                                                                                                                                                  | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 |       | .9/.9                  | .8/.9 | .5/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |  | 575                                                   | 875     | 380                                              | 425                               |
| 15,000                | 3,500                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 |       | .9/.9                  | .7/.9 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |  | 550                                                   | 875     | 405                                              | 443                               |
| 16,000                | 3,500                                                                      | .6/.8                                                                                                                                                                  | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | .9/.9                  | .7/.8 | .4/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 500                                                   | 850     | 435                                              | 460                               |
| 17,000                | 3,500                                                                      | .5/.8                                                                                                                                                                  | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 |       | .9/.9                  | .7/.8 | .4/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 475                                                   | 825     | 460                                              | 478                               |
| 18,000                | 3,500                                                                      | .5/.7                                                                                                                                                                  | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 |       |  | 425                                                   | 800     | 490                                              | 495                               |
| 19,000                | 3,600                                                                      | .4/.7                                                                                                                                                                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .9/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 |       |  | 400                                                   | 775     | 515                                              | 513                               |
| 20,000                | 3,600                                                                      | .3/.7                                                                                                                                                                  | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 |       |       | .8/.9                  | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.1 |       |  | 325                                                   | 750     | 540                                              | 530                               |
| 21,000                | 3,600                                                                      | .2/.6                                                                                                                                                                  | .2/.5 | .1/.3 | .0/.3 | .0/.2 | .0/.1 |       |       | .8/.9                  | .5/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.1 |       |  | 275                                                   | 725     | 570                                              | 548                               |
| 22,000                | 3,600                                                                      | .1/.6                                                                                                                                                                  | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 |       |       | .8/.9                  | .5/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 |       |  | 175                                                   | 700     | 595                                              | 565                               |
| 23,000                | 3,600                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .7/.9                  | .5/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 |       |  | 0                                                     | 675     | 625                                              | 583                               |
| 24,000                | 3,600                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .7/.9                  | .4/.7 | .3/.4 | .1/.3 | .1/.2 | .0/.1 |       |  | 0                                                     | 650     | 650                                              | 600                               |
| 25,000                | 3,700                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | .6/.9                  | .4/.7 | .2/.4 | .1/.3 | .0/.2 | .0/.1 |       |  | 0                                                     | 600     | 675                                              | 618                               |

Figure 4.1d(2).

# **EXPOSED Personnel Targets** **Small Free Rocket**

**DELTA/5 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |     | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-----|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |     |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |     |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 400                    | 800   | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 |     | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 2,100                                                                                   | .9/.9                                                                                                                                                                  | .8/.8 | .6/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 85      | 0                                                |                                   |
| 4,000             | 2,100                                                                                   | .9/.9                                                                                                                                                                  | .8/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 110     | 0                                                |                                   |
| 5,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 135     | 0                                                |                                   |
| 6,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 165     | 0                                                |                                   |
| 7,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 190     | 0                                                |                                   |
| 8,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 220     | 0                                                |                                   |
| 9,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 245     | 0                                                |                                   |
| 10,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 270     | 0                                                |                                   |
| 11,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 300     | 0                                                |                                   |
| 12,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 325     | 0                                                |                                   |
| 13,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 355     | 0                                                |                                   |
| 14,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 380     | 0                                                |                                   |
| 15,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 405     | 0                                                |                                   |
| 16,000            | 2,400                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 435     | 0                                                |                                   |
| 17,000            | 2,400                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 460     | 0                                                |                                   |
| 18,000            | 2,400                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 490     | 0                                                |                                   |
| 19,000            | 2,400                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 515     | 0                                                |                                   |
| 20,000            | 2,400                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 540     | 0                                                |                                   |
| 21,000            | 2,400                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 570     | 0                                                |                                   |
| 22,000            | 2,500                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 595     | 0                                                |                                   |
| 23,000            | 2,500                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 625     | 0                                                |                                   |
| 24,000            | 2,500                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 650     | 0                                                |                                   |
| 25,000            | 2,500                                                                                   | .5/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 800 | 1,050                                             | 675     | 0                                                |                                   |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.1d(3).

SFR 1

**EXPOSED Personnel Targets**  
**Small Free Rocket**

**LOW Airburst**  
**Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |        | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |         |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|------------------------------------------|--------|-----------------------------------------|-----------------------------------|---------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |                                          |        |                                         |                                   |         |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |                                          |        |                                         |                                   |         |
|                   |                                                                            | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |                                          | Prompt |                                         |                                   | Delayed |
| 3,000             | 4,100                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,150                                   | 85                                | 118     |
| 4,000             | 4,100                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,150                                   | 110                               | 135     |
| 5,000             | 4,200                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,150                                   | 135                               | 153     |
| 6,000             | 4,200                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,150                                   | 165                               | 170     |
| 7,000             | 4,200                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,150                                   | 190                               | 188     |
| 8,000             | 4,200                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,125                                   | 220                               | 205     |
| 9,000             | 4,200                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,125                                   | 245                               | 223     |
| 10,000            | 4,200                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,125                                   | 270                               | 240     |
| 11,000            | 4,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,125                                   | 300                               | 258     |
| 12,000            | 4,300                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |                                          | 875    | 1,100                                   | 325                               | 275     |
| 13,000            | 4,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                          | 850    | 1,100                                   | 355                               | 293     |
| 14,000            | 4,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                          | 850    | 1,075                                   | 380                               | 310     |
| 15,000            | 4,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                          | 850    | 1,075                                   | 405                               | 328     |
| 16,000            | 4,300                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                          | 825    | 1,050                                   | 435                               | 345     |
| 17,000            | 4,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                          | 725    | 1,050                                   | 460                               | 363     |
| 18,000            | 4,400                                                                      | .7/.9                                                                                                                                                                  | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                          | 700    | 1,025                                   | 490                               | 380     |
| 19,000            | 4,400                                                                      | .7/.9                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |                                          | 675    | 1,025                                   | 515                               | 398     |
| 20,000            | 4,400                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .8/.9                  | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |                                          | 650    | 1,000                                   | 540                               | 415     |
| 21,000            | 4,400                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .3/.6 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .8/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |                                          | 625    | 975                                     | 570                               | 433     |
| 22,000            | 4,500                                                                      | .5/.8                                                                                                                                                                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .7/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |                                          | 600    | 975                                     | 595                               | 450     |
| 23,000            | 4,500                                                                      | .5/.8                                                                                                                                                                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .7/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |                                          | 575    | 950                                     | 625                               | 468     |
| 24,000            | 4,500                                                                      | .4/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .7/.9                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |                                          | 550    | 925                                     | 650                               | 485     |
| 25,000            | 4,500                                                                      | .4/.7                                                                                                                                                                  | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.1 |       | .6/.8                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |                                          | 500    | 900                                     | 675                               | 503     |

Figure 4.1e(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range    | Minimum safe distance (negligible risk, UnW Ex) | FRACTION OF TARGET COVERED                                                                                                            |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable minimum $R_D$ | Offset distance $d_o$ | Height of burst |          |
|----------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-----------------------|-----------------|----------|
|          |                                                 | In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |                        |                       |                 |          |
|          |                                                 | PROMPT CASUALTIES                                                                                                                     |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                        |                       |                 |          |
|          |                                                 | Target radius (meters)                                                                                                                |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                        |                       |                 |          |
| (meters) | (meters)                                        | 600                                                                                                                                   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 400                    | 800   | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | Prompt                 | Delayed               | (meters)        | (meters) |
| 3,000    | 4,100                                           | .9/.9                                                                                                                                 | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875                    | 1,125                 | 85              | 280      |
| 4,000    | 4,100                                           | .9/.9                                                                                                                                 | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 875                    | 1,125                 | 110             | 297      |
| 5,000    | 4,200                                           | .9/.9                                                                                                                                 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 875                    | 1,125                 | 135             | 315      |
| 6,000    | 4,200                                           | .9/.9                                                                                                                                 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 875                    | 1,100                 | 165             | 332      |
| 7,000    | 4,200                                           | .9/.9                                                                                                                                 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850                    | 1,100                 | 190             | 350      |
| 8,000    | 4,200                                           | .9/.9                                                                                                                                 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850                    | 1,075                 | 220             | 367      |
| 9,000    | 4,200                                           | .9/.9                                                                                                                                 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850                    | 1,075                 | 245             | 385      |
| 10,000   | 4,200                                           | .9/.9                                                                                                                                 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 825                    | 1,050                 | 270             | 402      |
| 11,000   | 4,300                                           | .8/.9                                                                                                                                 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 725                    | 1,050                 | 300             | 420      |
| 12,000   | 4,300                                           | .8/.9                                                                                                                                 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 700                    | 1,025                 | 325             | 437      |
| 13,000   | 4,300                                           | .8/.9                                                                                                                                 | .6/.8 | .4/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 675                    | 1,025                 | 355             | 455      |
| 14,000   | 4,300                                           | .7/.9                                                                                                                                 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 650                    | 1,000                 | 380             | 472      |
| 15,000   | 4,300                                           | .7/.9                                                                                                                                 | .5/.7 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 625                    | 975                   | 405             | 490      |
| 16,000   | 4,300                                           | .6/.8                                                                                                                                 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 600                    | 975                   | 435             | 507      |
| 17,000   | 4,400                                           | .6/.8                                                                                                                                 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 575                    | 950                   | 460             | 525      |
| 18,000   | 4,400                                           | .5/.8                                                                                                                                 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 550                    | 925                   | 490             | 542      |
| 19,000   | 4,400                                           | .5/.8                                                                                                                                 | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .9/.9                  | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 590                    | 900                   | 515             | 560      |
| 20,000   | 4,400                                           | .4/.7                                                                                                                                 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .9/.9                  | .7/.9 | .5/.6 | .3/.4 | .1/.3 | .1/.2 | .0/.1 |       | 450                    | 875                   | 540             | 577      |
| 21,000   | 4,400                                           | .3/.7                                                                                                                                 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .9/.9                  | .7/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | 425                    | 850                   | 570             | 595      |
| 22,000   | 4,400                                           | .3/.6                                                                                                                                 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | .9/.9                  | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |       | 350                    | 825                   | 595             | 612      |
| 23,000   | 4,500                                           | .2/.6                                                                                                                                 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |       | 275                    | 800                   | 625             | 630      |
| 24,000   | 4,500                                           | .1/.6                                                                                                                                 | .1/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.1 |       |       | .8/.9                  | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |       | 200                    | 775                   | 650             | 647      |
| 25,000   | 4,500                                           | .0/.5                                                                                                                                 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .8/.9                  | .5/.8 | .3/.5 | .2/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                      | 750                   | 675             | 665      |

Figure 4.1e(2).

# EXPOSED Personnel Targets Small Free Rocket

ECHO/10 KT

IMPACT Burst  
Produces fallout

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |      |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |      |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |      |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 800                                                                                                                                                                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 400                    | 800  | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 2,700                                                                                   | .8/9                                                                                                                                                                   | .7/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 85                                               | 0                                 |
| 4,000             | 2,700                                                                                   | .8/9                                                                                                                                                                   | .7/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 110                                              | 0                                 |
| 5,000             | 2,700                                                                                   | .8/9                                                                                                                                                                   | .7/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 135                                              | 0                                 |
| 6,000             | 2,700                                                                                   | .8/9                                                                                                                                                                   | .6/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 165                                              | 0                                 |
| 7,000             | 2,700                                                                                   | .8/9                                                                                                                                                                   | .6/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 190                                              | 0                                 |
| 8,000             | 2,700                                                                                   | .8/9                                                                                                                                                                   | .6/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 220                                              | 0                                 |
| 9,000             | 2,800                                                                                   | .8/9                                                                                                                                                                   | .6/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 245                                              | 0                                 |
| 10,000            | 2,800                                                                                   | .8/9                                                                                                                                                                   | .6/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 270                                              | 0                                 |
| 11,000            | 2,800                                                                                   | .8/9                                                                                                                                                                   | .6/7  | .5/6  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 300                                              | 0                                 |
| 12,000            | 2,800                                                                                   | .8/9                                                                                                                                                                   | .6/7  | .5/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .5/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 325                                              | 0                                 |
| 13,000            | 2,800                                                                                   | .7/9                                                                                                                                                                   | .6/7  | .5/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 355                                              | 0                                 |
| 14,000            | 2,900                                                                                   | .7/8                                                                                                                                                                   | .6/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 380                                              | 0                                 |
| 15,000            | 2,900                                                                                   | .7/8                                                                                                                                                                   | .6/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 405                                              | 0                                 |
| 16,000            | 2,900                                                                                   | .7/8                                                                                                                                                                   | .6/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .9/9 | .7/8  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 435                                              | 0                                 |
| 17,000            | 2,900                                                                                   | .7/8                                                                                                                                                                   | .6/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .8/9 | .6/8  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 460                                              | 0                                 |
| 18,000            | 2,900                                                                                   | .7/8                                                                                                                                                                   | .5/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .8/9 | .6/8  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 490                                              | 0                                 |
| 19,000            | 2,900                                                                                   | .7/8                                                                                                                                                                   | .5/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .8/9 | .6/8  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 515                                              | 0                                 |
| 20,000            | 3,000                                                                                   | .6/8                                                                                                                                                                   | .5/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .8/9 | .6/8  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 540                                              | 0                                 |
| 21,000            | 3,000                                                                                   | .6/8                                                                                                                                                                   | .5/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .8/9 | .6/7  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 570                                              | 0                                 |
| 22,000            | 3,000                                                                                   | .6/8                                                                                                                                                                   | .5/7  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .8/9 | .6/7  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 595                                              | 0                                 |
| 23,000            | 3,000                                                                                   | .6/8                                                                                                                                                                   | .5/6  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .7/9 | .6/7  | .4/5  | .3/4  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 625                                              | 0                                 |
| 24,000            | 3,000                                                                                   | .6/8                                                                                                                                                                   | .5/6  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .7/9 | .6/7  | .4/5  | .3/3  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 650                                              | 0                                 |
| 25,000            | 3,000                                                                                   | .5/8                                                                                                                                                                   | .5/6  | .4/5  | .3/4  | .2/3  | .2/3  | .1/2  | .1/2  | .9/9                   | .7/9 | .6/7  | .4/5  | .3/3  | .2/2  | .1/2  | .1/1  | 900                                               | 1,175   | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.1e(3).

SFR 1

<sup>1</sup>Small Free Rocket.

EXPOSED  
TARGETS

# PROTECTED Personnel Targets Small Free Rocket

LOW Airburst  
 Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |  | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |  |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |  |                                          |         |                                         |                                   |
|                   |                                                                            | 100                                                                                                                                                                    | 200   | 300   | 400   | 500   | 600   | 700   | 800   | 200                    | 400   | 600   | 800   | 1,000 | 1,200 | 1,400 |  | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |  | 275                                      | 500     | 85                                      | 77                                |
| 4,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 275                                      | 475     | 110                                     | 94                                |
| 5,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 250                                      | 475     | 135                                     | 112                               |
| 6,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |  | 225                                      | 475     | 165                                     | 129                               |
| 7,000             | 1,600                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 |  | 200                                      | 450     | 190                                     | 147                               |
| 8,000             | 1,700                                                                      | .6/.8                                                                                                                                                                  | .4/.7 | .3/.5 | .2/.4 | .1/.2 | .0/.2 | .0/.1 |       | .9/.9                  | .7/.9 | .5/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |  | 175                                      | 450     | 220                                     | 164                               |
| 9,000             | 1,700                                                                      | .3/.7                                                                                                                                                                  | .2/.6 | .2/.5 | .1/.3 | .0/.2 | .0/.1 |       |       | .9/.9                  | .7/.8 | .4/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |  | 125                                      | 425     | 245                                     | 182                               |
| 10,000            | 1,700                                                                      | .0/.6                                                                                                                                                                  | .0/.3 | .0/.1 |       |       |       |       |       | .8/.9                  | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 |       |  | 50                                       | 400     | 270                                     | 199                               |
| 11,000            | 1,700                                                                      | .0/.6                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .8/.9                  | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.1 |       |  | 0                                        | 375     | 300                                     | 217                               |
| 12,000            | 1,700                                                                      | .0/.5                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .7/.9                  | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.1 |       |  | 0                                        | 350     | 325                                     | 234                               |
| 13,000            | 1,700                                                                      | .0/.4                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .6/.9                  | .4/.7 | .3/.4 | .1/.3 | .1/.2 | .0/.1 |       |  | 0                                        | 325     | 355                                     | 252                               |
| 14,000            | 1,800                                                                      | .0/.4                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .5/.8                  | .4/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 |       |  | 0                                        | 300     | 380                                     | 269                               |
| 15,000            | 1,800                                                                      | .0/.3                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .4/.8                  | .3/.6 | .2/.4 | .1/.2 | .0/.2 | .0/.1 |       |  | 0                                        | 250     | 405                                     | 287                               |
| 16,000            | 1,800                                                                      | .0/.3                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .2/.7                  | .2/.5 | .1/.4 | .0/.2 | .0/.1 |       |       |  | 0                                        | 200     | 435                                     | 304                               |
| 17,000            | 1,800                                                                      | .0/.3                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.6                  | .1/.5 | .0/.3 | .0/.2 | .0/.1 |       |       |  | 0                                        | 125     | 460                                     | 322                               |
| 18,000            | 1,800                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.6                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |  | 0                                        | 0       | 490                                     | 339                               |
| 19,000            | 1,800                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |  | 0                                        | 0       | 515                                     | 357                               |
| 20,000            | 1,900                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.4                  | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       |       |  | 0                                        | 0       | 540                                     | 374                               |
| 21,000            | 1,900                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |  | 0                                        | 0       | 570                                     | 392                               |
| 22,000            | 1,900                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.3                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |  | 0                                        | 0       | 595                                     | 409                               |
| 23,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.3                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |  | 0                                        | 0       | 625                                     | 427                               |
| 24,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.3                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |  | 0                                        | 0       | 650                                     | 444                               |
| 25,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.2                  | .0/.2 | .0/.1 |       |       |       |       |  | 0                                        | 0       | 675                                     | 462                               |

Figure 4.2a(1).

HIGH Airburst  
 Reduces intensity of induced contamination. Precludes fallout.

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |     | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-----|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |     |                                                   |         |                                                  |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |     |                                                   |         |                                                  |                                   |
|                   |                                                                            | 100                                                                                                                                                                    | 200   | 300   | 400   | 500   | 600   | 700   |       | 200                    | 400   | 600   | 800   | 1,000 | 1,200 | 1,400 |     | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.1 | .9/.9 | .9/.9                  | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |       | 250 | 475                                               | 85      | 137                                              |                                   |
| 4,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9 | .8/.9                  | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |       | 225 | 450                                               | 110     | 154                                              |                                   |
| 5,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | .9/.9 | .8/.9                  | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 |       | 200 | 450                                               | 135     | 172                                              |                                   |
| 6,000             | 1,600                                                                      | .7/.9                                                                                                                                                                  | .5/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .9/.9 | .8/.9                  | .5/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | 175 | 425                                               | 165     | 189                                              |                                   |
| 7,000             | 1,600                                                                      | .4/.8                                                                                                                                                                  | .3/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 |       | .9/.9 | .7/.8                  | .4/.5 | .2/.3 | .1/.2 | .1/.1 |       | 125   | 425 | 190                                               | 207     |                                                  |                                   |
| 8,000             | 1,600                                                                      | .0/.8                                                                                                                                                                  | .0/.6 | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       | .9/.9 | .7/.8                  | .4/.5 | .2/.3 | .1/.2 | .1/.1 |       | 0     | 400 | 220                                               | 224     |                                                  |                                   |
| 9,000             | 1,700                                                                      | .0/.7                                                                                                                                                                  | .0/.5 | .0/.3 | .0/.2 | .0/.1 |       |       | .9/.9 | .6/.8                  | .3/.5 | .2/.3 | .1/.2 | .0/.1 |       | 0     | 375 | 245                                               | 242     |                                                  |                                   |
| 10,000            | 1,700                                                                      | .0/.6                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | .8/.9 | .5/.7                  | .3/.5 | .1/.3 | .1/.2 | .0/.1 |       | 0     | 350 | 270                                               | 259     |                                                  |                                   |
| 11,000            | 1,700                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.2 | .0/.1 |       |       |       | .7/.9 | .5/.7                  | .3/.4 | .1/.3 | .1/.2 | .0/.1 |       | 0     | 325 | 300                                               | 277     |                                                  |                                   |
| 12,000            | 1,700                                                                      | .0/.5                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       | .6/.8 | .4/.6                  | .2/.4 | .1/.2 | .0/.2 | .0/.1 |       | 0     | 300 | 325                                               | 294     |                                                  |                                   |
| 13,000            | 1,700                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       | .4/.8 | .3/.6                  | .1/.4 | .0/.2 | .0/.2 | .0/.1 |       | 0     | 250 | 355                                               | 312     |                                                  |                                   |
| 14,000            | 1,700                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       | .2/.7 | .2/.5                  | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0     | 200 | 380                                               | 329     |                                                  |                                   |
| 15,000            | 1,800                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       | .1/.6 | .0/.5                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0     | 100 | 405                                               | 347     |                                                  |                                   |
| 16,000            | 1,800                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       | .0/.6 | .0/.4                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0     | 0   | 435                                               | 364     |                                                  |                                   |
| 17,000            | 1,800                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       | .0/.5 | .0/.4                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 0     | 0   | 460                                               | 382     |                                                  |                                   |
| 18,000            | 1,800                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       | .0/.4 | .0/.3                  | .0/.2 | .0/.2 | .0/.1 |       |       | 0     | 0   | 490                                               | 399     |                                                  |                                   |
| 19,000            | 1,800                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       | .0/.4 | .0/.3                  | .0/.2 | .0/.1 |       |       |       | 0     | 0   | 515                                               | 417     |                                                  |                                   |
| 20,000            | 1,800                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       | .0/.3 | .0/.3                  | .0/.2 | .0/.1 |       |       |       | 0     | 0   | 540                                               | 434     |                                                  |                                   |
| 21,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       | .0/.3 | .0/.2                  | .0/.2 | .0/.1 |       |       |       | 0     | 0   | 570                                               | 452     |                                                  |                                   |
| 22,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       | .0/.3 | .0/.2                  | .0/.1 |       |       |       |       | 0     | 0   | 595                                               | 469     |                                                  |                                   |
| 23,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       | .0/.2 | .0/.2                  | .0/.1 |       |       |       |       | 0     | 0   | 625                                               | 487     |                                                  |                                   |
| 24,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       | .0/.2 | .0/.2                  | .0/.1 |       |       |       |       | 0     | 0   | 650                                               | 504     |                                                  |                                   |
| 25,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       | .0/.2 | .0/.1                  |       |       |       |       |       | 0     | 0   | 675                                               | 522     |                                                  |                                   |

Figure 4.2a(2).

**PROTECTED Personnel Targets  
Small Free Rocket**

**ALFA/.5 KT**

**IMPACT Burst  
Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 100                                                                                                                                                                    | 200   | 300   | 400   | 500   | 600   | 700   | 800   | 200                    | 400   | 600   | 800   | 1,000 | 1,200 | 1,400 | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 85                                               | 0                                 |
| 4,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 110                                              | 0                                 |
| 5,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 135                                              | 0                                 |
| 6,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 165                                              | 0                                 |
| 7,000             | 1,600                                                                                   | .9/.9                                                                                                                                                                  | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 190                                              | 0                                 |
| 8,000             | 1,700                                                                                   | .8/.9                                                                                                                                                                  | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 220                                              | 0                                 |
| 9,000             | 1,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 245                                              | 0                                 |
| 10,000            | 1,700                                                                                   | .7/.9                                                                                                                                                                  | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 270                                              | 0                                 |
| 11,000            | 1,700                                                                                   | .6/.8                                                                                                                                                                  | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 300                                              | 0                                 |
| 12,000            | 1,700                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.6 | .3/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | .8/.9                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 325                                              | 0                                 |
| 13,000            | 1,700                                                                                   | .4/.8                                                                                                                                                                  | .3/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 355                                              | 0                                 |
| 14,000            | 1,800                                                                                   | .3/.7                                                                                                                                                                  | .3/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 380                                              | 0                                 |
| 15,000            | 1,800                                                                                   | .2/.7                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.9                  | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 405                                              | 0                                 |
| 16,000            | 1,800                                                                                   | .1/.6                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.9                  | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 435                                              | 0                                 |
| 17,000            | 1,800                                                                                   | .0/.6                                                                                                                                                                  | .1/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.9                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 460                                              | 0                                 |
| 18,000            | 1,800                                                                                   | .0/.6                                                                                                                                                                  | .1/.5 | .1/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.8                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 490                                              | 0                                 |
| 19,000            | 1,800                                                                                   | .0/.5                                                                                                                                                                  | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.8                  | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 515                                              | 0                                 |
| 20,000            | 1,900                                                                                   | .0/.5                                                                                                                                                                  | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.8                  | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 300                                               | 500     | 540                                              | 0                                 |
| 21,000            | 1,900                                                                                   | .0/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .4/.8                  | .4/.7 | .3/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 300                                               | 500     | 570                                              | 0                                 |
| 22,000            | 1,900                                                                                   | .0/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .4/.8                  | .3/.7 | .3/.5 | .2/.4 | .2/.2 | .1/.2 | .1/.1 | 300                                               | 500     | 595                                              | 0                                 |
| 23,000            | 1,900                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .3/.7                  | .3/.6 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                               | 500     | 625                                              | 0                                 |
| 24,000            | 1,900                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .2/.7                  | .2/.6 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                               | 500     | 650                                              | 0                                 |
| 25,000            | 2,000                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.1 | .2/.7                  | .2/.6 | .2/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                               | 500     | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.2a(3).

SFR 1

# PROTECTED Personnel Targets Small Free Rocket

LOW Airburst  
 Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 200                                                                                                                                                                    | 300   | 400   | 500   | 600   | 700   | 800   | 900   | 200                    | 400   | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 1,900                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400                                      | 575     | 85                                      | 83                                |
| 4,000             | 1,900                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 375                                      | 575     | 110                                     | 100                               |
| 5,000             | 2,000                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 375                                      | 575     | 135                                     | 118                               |
| 6,000             | 2,000                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 350                                      | 550     | 165                                     | 135                               |
| 7,000             | 2,000                                                                      | .9/.9                                                                                                                                                                  | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350                                      | 550     | 190                                     | 153                               |
| 8,000             | 2,000                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                      | 525     | 220                                     | 170                               |
| 9,000             | 2,000                                                                      | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                      | 525     | 245                                     | 188                               |
| 10,000            | 2,100                                                                      | .6/.9                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .0/.2 | .9/.9                  | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 275                                      | 500     | 270                                     | 205                               |
| 11,000            | 2,100                                                                      | .5/.8                                                                                                                                                                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .9/.9                  | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 250                                      | 500     | 300                                     | 223                               |
| 12,000            | 2,100                                                                      | .4/.7                                                                                                                                                                  | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | .9/.9                  | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 200                                      | 475     | 325                                     | 240                               |
| 13,000            | 2,100                                                                      | .2/.7                                                                                                                                                                  | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 150                                      | 450     | 355                                     | 258                               |
| 14,000            | 2,100                                                                      | .0/.7                                                                                                                                                                  | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | 50                                       | 425     | 380                                     | 275                               |
| 15,000            | 2,100                                                                      | .0/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | .7/.9                  | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | 0                                        | 400     | 405                                     | 293                               |
| 16,000            | 2,200                                                                      | .0/.6                                                                                                                                                                  | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .6/.8                  | .4/.7 | .3/.5 | .2/.4 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 375     | 435                                     | 310                               |
| 17,000            | 2,200                                                                      | .0/.6                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .5/.8                  | .4/.7 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 325     | 460                                     | 328                               |
| 18,000            | 2,200                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | .3/.7                  | .3/.6 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 275     | 490                                     | 345                               |
| 19,000            | 2,200                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .2/.7                  | .2/.6 | .2/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 225     | 515                                     | 363                               |
| 20,000            | 2,200                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .0/.6                  | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 150     | 540                                     | 380                               |
| 21,000            | 2,200                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .0/.6                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 570                                     | 398                               |
| 22,000            | 2,300                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .0/.5                  | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 595                                     | 415                               |
| 23,000            | 2,300                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 625                                     | 433                               |
| 24,000            | 2,300                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .0/.4                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                                        | 0       | 650                                     | 450                               |
| 25,000            | 2,300                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                                        | 0       | 675                                     | 468                               |

Figure 4.2b(1).

## HIGH Airburst Reduces intensity of induced contamination. Precludes fallout.

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 100                                                                                                                                                                    | 200   | 300   | 400   | 500   | 600   | 700   | 800   | 200                    | 400   | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 1,900                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 375                                      | 550     | 85                                      | 158                               |
| 4,000             | 1,900                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 350                                      | 550     | 110                                     | 175                               |
| 5,000             | 2,000                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                      | 550     | 135                                     | 193                               |
| 6,000             | 2,000                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .9/.9                  | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                      | 525     | 165                                     | 210                               |
| 7,000             | 2,000                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 275                                      | 500     | 190                                     | 228                               |
| 8,000             | 2,000                                                                      | .8/.9                                                                                                                                                                  | .7/.9 | .5/.7 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 250                                      | 500     | 220                                     | 245                               |
| 9,000             | 2,000                                                                      | .7/.9                                                                                                                                                                  | .5/.8 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .9/.9                  | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 225                                      | 475     | 245                                     | 263                               |
| 10,000            | 2,000                                                                      | .4/.8                                                                                                                                                                  | .3/.7 | .3/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | .9/.9                  | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 175                                      | 450     | 270                                     | 280                               |
| 11,000            | 2,100                                                                      | .1/.7                                                                                                                                                                  | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | .9/.9                  | .7/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | 75                                       | 425     | 300                                     | 298                               |
| 12,000            | 2,100                                                                      | .0/.7                                                                                                                                                                  | .0/.6 | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       |       | .8/.9                  | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 |       | 0                                        | 400     | 325                                     | 315                               |
| 13,000            | 2,100                                                                      | .0/.7                                                                                                                                                                  | .0/.5 | .0/.3 | .0/.2 | .0/.1 |       |       |       | .7/.9                  | .5/.8 | .3/.5 | .2/.4 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 375     | 355                                     | 333                               |
| 14,000            | 2,100                                                                      | .0/.6                                                                                                                                                                  | .0/.5 | .0/.3 | .0/.2 | .0/.1 |       |       |       | .6/.9                  | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 350     | 380                                     | 350                               |
| 15,000            | 2,100                                                                      | .0/.6                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | .5/.8                  | .3/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 300     | 405                                     | 368                               |
| 16,000            | 2,100                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.1 |       |       |       |       | .3/.8                  | .3/.6 | .2/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 250     | 435                                     | 385                               |
| 17,000            | 2,200                                                                      | .0/.5                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .1/.7                  | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 175     | 460                                     | 403                               |
| 18,000            | 2,200                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .0/.6                  | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 490                                     | 420                               |
| 19,000            | 2,200                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .0/.6                  | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 515                                     | 438                               |
| 20,000            | 2,200                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                                        | 0       | 540                                     | 455                               |
| 21,000            | 2,200                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                                        | 0       | 570                                     | 473                               |
| 22,000            | 2,200                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                                        | 0       | 595                                     | 490                               |
| 23,000            | 2,300                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                                        | 0       | 625                                     | 508                               |
| 24,000            | 2,300                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .0/.3                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | 0                                        | 0       | 650                                     | 525                               |
| 25,000            | 2,300                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.3                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                                        | 0       | 675                                     | 543                               |

Figure 4.2b(2).



**PROTECTED Personnel Targets  
Small Free Rocket**

**BRAVO/1 KT**

**IMPACT Burst  
Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |        | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |     | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--------|---------------------------------------------------|-----|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |        |                                                   |     |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |        |                                                   |     |                                                  |                                   |
|                   |                                                                                         | 300                                                                                                                                                                    | 400   | 500   | 600   | 700   | 800   | 900   | 1,000 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | Prompt | Delayed                                           |     |                                                  |                                   |
| 3,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 85  | 0                                                |                                   |
| 4,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 110 | 0                                                |                                   |
| 5,000             | 2,000                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 135 | 0                                                |                                   |
| 6,000             | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 165 | 0                                                |                                   |
| 7,000             | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 190 | 0                                                |                                   |
| 8,000             | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 220 | 0                                                |                                   |
| 9,000             | 2,000                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 245 | 0                                                |                                   |
| 10,000            | 2,100                                                                                   | .7/.9                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 270 | 0                                                |                                   |
| 11,000            | 2,100                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 300 | 0                                                |                                   |
| 12,000            | 2,100                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 325 | 0                                                |                                   |
| 13,000            | 2,100                                                                                   | .5/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 355 | 0                                                |                                   |
| 14,000            | 2,100                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 380 | 0                                                |                                   |
| 15,000            | 2,100                                                                                   | .5/.8                                                                                                                                                                  | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.9                  | .5/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 405 | 0                                                |                                   |
| 16,000            | 2,200                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.9                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 435 | 0                                                |                                   |
| 17,000            | 2,200                                                                                   | .4/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.8                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 460 | 0                                                |                                   |
| 18,000            | 2,200                                                                                   | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.8                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 490 | 0                                                |                                   |
| 19,000            | 2,200                                                                                   | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.8                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 515 | 0                                                |                                   |
| 20,000            | 2,200                                                                                   | .2/.6                                                                                                                                                                  | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .5/.8                  | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 540 | 0                                                |                                   |
| 21,000            | 2,200                                                                                   | .2/.6                                                                                                                                                                  | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .5/.8                  | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 570 | 0                                                |                                   |
| 22,000            | 2,300                                                                                   | .2/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .5/.8                  | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 595 | 0                                                |                                   |
| 23,000            | 2,300                                                                                   | .1/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .4/.7                  | .4/.6 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 625 | 0                                                |                                   |
| 24,000            | 2,300                                                                                   | .1/.5                                                                                                                                                                  | .1/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .4/.7                  | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 650 | 0                                                |                                   |
| 25,000            | 2,300                                                                                   | .1/.5                                                                                                                                                                  | .1/.5 | .1/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .4/.7                  | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400    | 600                                               | 675 | 0                                                |                                   |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.2b(3).

SFR 1

# PROTECTED Personnel Targets Small Free Rocket

LOW Airburst  
 Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 400                                                                                                                                                                    | 500   | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                      | 675     | 85                                      | 91                                |
| 4,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 450                                      | 675     | 110                                     | 108                               |
| 5,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                      | 675     | 135                                     | 126                               |
| 6,000             | 2,300                                                                      | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                      | 650     | 165                                     | 143                               |
| 7,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 400                                      | 650     | 190                                     | 161                               |
| 8,000             | 2,400                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400                                      | 625     | 220                                     | 178                               |
| 9,000             | 2,400                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                      | 625     | 245                                     | 196                               |
| 10,000            | 2,400                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350                                      | 600     | 270                                     | 213                               |
| 11,000            | 2,400                                                                      | .5/.7                                                                                                                                                                  | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | .8/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                      | 600     | 300                                     | 231                               |
| 12,000            | 2,400                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 |       | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                      | 575     | 325                                     | 248                               |
| 13,000            | 2,400                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 250                                      | 575     | 355                                     | 266                               |
| 14,000            | 2,500                                                                      | .2/.5                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | .7/.9                  | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 200                                      | 550     | 380                                     | 283                               |
| 15,000            | 2,500                                                                      | .1/.5                                                                                                                                                                  | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .7/.9                  | .5/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 |       | 150                                      | 525     | 405                                     | 301                               |
| 16,000            | 2,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .6/.8                  | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | 0                                        | 500     | 435                                     | 318                               |
| 17,000            | 2,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .6/.8                  | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | 0                                        | 475     | 460                                     | 336                               |
| 18,000            | 2,500                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .5/.8                  | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 450     | 490                                     | 353                               |
| 19,000            | 2,500                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .4/.7                  | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 400     | 515                                     | 371                               |
| 20,000            | 2,600                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .4/.7                  | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 375     | 540                                     | 388                               |
| 21,000            | 2,600                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .3/.7                  | .2/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 325     | 570                                     | 406                               |
| 22,000            | 2,600                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .2/.6                  | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 275     | 595                                     | 423                               |
| 23,000            | 2,600                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .1/.6                  | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 175     | 625                                     | 441                               |
| 24,000            | 2,600                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 650                                     | 458                               |
| 25,000            | 2,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 0       | 675                                     | 476                               |

Figure 4.2c(1).

HIGH Airburst  
 Reduces intensity of induced contamination. Precludes fallout.

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 300                                                                                                                                                                    | 400   | 500   | 600   | 700   | 800   | 900   | 1,000 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 2,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425                                      | 650     | 85                                      | 185                               |
| 4,000             | 2,300                                                                      | .9/.9                                                                                                                                                                  | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 400                                      | 650     | 110                                     | 202                               |
| 5,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                      | 650     | 135                                     | 220                               |
| 6,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | .9/.9                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350                                      | 650     | 165                                     | 237                               |
| 7,000             | 2,300                                                                      | .6/.8                                                                                                                                                                  | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                      | 625     | 190                                     | 255                               |
| 8,000             | 2,400                                                                      | .5/.8                                                                                                                                                                  | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                      | 625     | 220                                     | 272                               |
| 9,000             | 2,400                                                                      | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .9/.9                  | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 275                                      | 625     | 245                                     | 290                               |
| 10,000            | 2,400                                                                      | .3/.6                                                                                                                                                                  | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 225                                      | 600     | 270                                     | 307                               |
| 11,000            | 2,400                                                                      | .1/.6                                                                                                                                                                  | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .6/.8 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 |       | 175                                      | 600     | 300                                     | 325                               |
| 12,000            | 2,400                                                                      | .1/.6                                                                                                                                                                  | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | .8/.9                  | .5/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 100                                      | 575     | 325                                     | 342                               |
| 13,000            | 2,400                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .7/.9                  | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | 0                                        | 575     | 355                                     | 360                               |
| 14,000            | 2,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.1 |       |       |       | .6/.8                  | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | 0                                        | 550     | 380                                     | 377                               |
| 15,000            | 2,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .6/.8                  | .4/.6 | .3/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 550     | 405                                     | 395                               |
| 16,000            | 2,500                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | .5/.8                  | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 525     | 435                                     | 412                               |
| 17,000            | 2,500                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .4/.7                  | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 500     | 460                                     | 430                               |
| 18,000            | 2,500                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | .3/.7                  | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                        | 475     | 490                                     | 447                               |
| 19,000            | 2,500                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .2/.6                  | .2/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 450     | 515                                     | 465                               |
| 20,000            | 2,500                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | .1/.6                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                                        | 425     | 540                                     | 482                               |
| 21,000            | 2,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                                        | 400     | 570                                     | 500                               |
| 22,000            | 2,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                                        | 400     | 595                                     | 517                               |
| 23,000            | 2,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                                        | 375     | 625                                     | 535                               |
| 24,000            | 2,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                                        | 350     | 650                                     | 552                               |
| 25,000            | 2,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | .0/.4                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | 0                                        | 325     | 675                                     | 570                               |

Figure 4.2c(2).

**PROTECTED Personnel Targets**  
**Small Free Rocket**

**CHARLIE/2 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>0</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 300                                                                                                                                                                    | 400   | 500   | 600   | 700   | 800   | 900   | 1,000 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 85                                               | 0                                 |
| 4,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 110                                              | 0                                 |
| 5,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 135                                              | 0                                 |
| 6,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 165                                              | 0                                 |
| 7,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 190                                              | 0                                 |
| 8,000             | 1,900                                                                                   | .8/.9                                                                                                                                                                  | .7/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 220                                              | 0                                 |
| 9,000             | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 245                                              | 0                                 |
| 10,000            | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 270                                              | 0                                 |
| 11,000            | 2,000                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .7/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 300                                              | 0                                 |
| 12,000            | 2,000                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .9/.9                  | .7/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 325                                              | 0                                 |
| 13,000            | 2,000                                                                                   | .6/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .8/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 355                                              | 0                                 |
| 14,000            | 2,100                                                                                   | .6/.8                                                                                                                                                                  | .5/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .8/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 380                                              | 0                                 |
| 15,000            | 2,100                                                                                   | .6/.8                                                                                                                                                                  | .5/.8 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .8/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 405                                              | 0                                 |
| 16,000            | 2,100                                                                                   | .5/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .8/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 435                                              | 0                                 |
| 17,000            | 2,100                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .8/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.2 | .1/.1 | .1/.2 | 475                                               | 675     | 460                                              | 0                                 |
| 18,000            | 2,100                                                                                   | .4/.8                                                                                                                                                                  | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .7/.9                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 490                                              | 0                                 |
| 19,000            | 2,100                                                                                   | .4/.8                                                                                                                                                                  | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .7/.9                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 515                                              | 0                                 |
| 20,000            | 2,200                                                                                   | .4/.7                                                                                                                                                                  | .3/.6 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .7/.9                  | .5/.8 | .4/.6 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 540                                              | 0                                 |
| 21,000            | 2,200                                                                                   | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .6/.9                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 570                                              | 0                                 |
| 22,000            | 2,200                                                                                   | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .6/.8                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 595                                              | 0                                 |
| 23,000            | 2,200                                                                                   | .2/.6                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .6/.8                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 625                                              | 0                                 |
| 24,000            | 2,200                                                                                   | .2/.6                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .5/.8                  | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 650                                              | 0                                 |
| 25,000            | 2,200                                                                                   | .2/.6                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .5/.8                  | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 475                                               | 675     | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.2c(3).

SFR 1

# PROTECTED Personnel Targets Small Free Rocket

LOW Airburst  
 Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 500                                                                                                                                                                    | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 1,200 | 600                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.8 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600                                      | 800     | 85                                      | 105                               |
| 4,000             | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600                                      | 800     | 110                                     | 122                               |
| 5,000             | 3,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 600                                      | 800     | 135                                     | 140                               |
| 6,000             | 3,400                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .5/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 575                                      | 800     | 165                                     | 157                               |
| 7,000             | 3,400                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 575                                      | 775     | 190                                     | 175                               |
| 8,000             | 3,400                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 550                                      | 775     | 220                                     | 192                               |
| 9,000             | 3,400                                                                      | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 550                                      | 775     | 245                                     | 210                               |
| 10,000            | 3,400                                                                      | .7/.8                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 525                                      | 750     | 270                                     | 227                               |
| 11,000            | 3,400                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 500                                      | 750     | 300                                     | 245                               |
| 12,000            | 3,500                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .8/.9                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 500                                      | 725     | 325                                     | 262                               |
| 13,000            | 3,500                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .8/.9                  | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 475                                      | 725     | 355                                     | 280                               |
| 14,000            | 3,500                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 450                                      | 700     | 380                                     | 297                               |
| 15,000            | 3,500                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .7/.9                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 425                                      | 675     | 405                                     | 315                               |
| 16,000            | 3,500                                                                      | .4/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .7/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375                                      | 650     | 435                                     | 332                               |
| 17,000            | 3,500                                                                      | .3/.6                                                                                                                                                                  | .3/.5 | .2/.4 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .6/.8                  | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350                                      | 650     | 460                                     | 350                               |
| 18,000            | 3,600                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | .6/.8                  | .5/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 300                                      | 625     | 490                                     | 367                               |
| 19,000            | 3,600                                                                      | .2/.5                                                                                                                                                                  | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | .5/.8                  | .4/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 250                                      | 600     | 515                                     | 385                               |
| 20,000            | 3,600                                                                      | .1/.5                                                                                                                                                                  | .1/.4 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .5/.7                  | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 175                                      | 575     | 540                                     | 402                               |
| 21,000            | 3,600                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .5/.7                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.2 | .0/.1 | 25                                       | 550     | 570                                     | 420                               |
| 22,000            | 3,600                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .4/.7                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 500     | 595                                     | 437                               |
| 23,000            | 3,600                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | .4/.7                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                        | 475     | 625                                     | 455                               |
| 24,000            | 3,700                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .3/.6                  | .2/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 425     | 650                                     | 472                               |
| 25,000            | 3,700                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | .2/.6                  | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                        | 375     | 675                                     | 490                               |

Figure 4.2d(1).

## HIGH Airburst Reduces intensity of induced contamination. Precludes fallout.

| Range<br>(meters) | Minimum safe distance<br>(negligible risk, UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable minimum $R_D$<br>(meters) |         | Offset distance $d_o$<br>(meters) | Height of burst<br>(meters) |
|-------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------|---------|-----------------------------------|-----------------------------|
|                   |                                                                | PROMPT CASUALTIES                                                                                                                                                   |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                    |         |                                   |                             |
|                   |                                                                | Target radius (meters)                                                                                                                                              |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                    |         |                                   |                             |
|                   |                                                                | 400                                                                                                                                                                 | 500   | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt                             | Delayed |                                   |                             |
| 3,000             | 3,300                                                          | .9/.9                                                                                                                                                               | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                | 775     | 85                                | 233                         |
| 4,000             | 3,300                                                          | .9/.9                                                                                                                                                               | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 550                                | 775     | 110                               | 250                         |
| 5,000             | 3,300                                                          | .9/.9                                                                                                                                                               | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525                                | 750     | 135                               | 268                         |
| 6,000             | 3,300                                                          | .9/.9                                                                                                                                                               | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 525                                | 750     | 165                               | 285                         |
| 7,000             | 3,400                                                          | .8/.9                                                                                                                                                               | .7/.8 | .6/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 500                                | 725     | 190                               | 303                         |
| 8,000             | 3,400                                                          | .8/.9                                                                                                                                                               | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 475                                | 725     | 220                               | 320                         |
| 9,000             | 3,400                                                          | .8/.9                                                                                                                                                               | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 450                                | 700     | 245                               | 338                         |
| 10,000            | 3,400                                                          | .7/.9                                                                                                                                                               | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 425                                | 675     | 270                               | 355                         |
| 11,000            | 3,400                                                          | .6/.8                                                                                                                                                               | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 400                                | 675     | 300                               | 373                         |
| 12,000            | 3,400                                                          | .5/.8                                                                                                                                                               | .4/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9                  | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 350                                | 650     | 325                               | 390                         |
| 13,000            | 3,500                                                          | .4/.7                                                                                                                                                               | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .8/.9                  | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 325                                | 625     | 355                               | 408                         |
| 14,000            | 3,500                                                          | .3/.7                                                                                                                                                               | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | .8/.9                  | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 275                                | 600     | 380                               | 425                         |
| 15,000            | 3,500                                                          | .2/.6                                                                                                                                                               | .2/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 200                                | 575     | 405                               | 443                         |
| 16,000            | 3,500                                                          | .1/.6                                                                                                                                                               | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .7/.9                  | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 100                                | 550     | 435                               | 460                         |
| 17,000            | 3,500                                                          | .0/.5                                                                                                                                                               | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | .7/.9                  | .5/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 0                                  | 525     | 460                               | 478                         |
| 18,000            | 3,500                                                          | .0/.5                                                                                                                                                               | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | .6/.8                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0                                  | 475     | 490                               | 495                         |
| 19,000            | 3,600                                                          | .0/.4                                                                                                                                                               | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .5/.8                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 0                                  | 450     | 515                               | 513                         |
| 20,000            | 3,600                                                          | .0/.4                                                                                                                                                               | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | .4/.8                  | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 |       | 0                                  | 400     | 540                               | 530                         |
| 21,000            | 3,600                                                          | .0/.3                                                                                                                                                               | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | .3/.7                  | .3/.6 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                  | 350     | 570                               | 548                         |
| 22,000            | 3,600                                                          | .0/.3                                                                                                                                                               | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .2/.7                  | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                  | 275     | 595                               | 565                         |
| 23,000            | 3,600                                                          | .0/.3                                                                                                                                                               | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | .1/.6                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                  | 175     | 625                               | 583                         |
| 24,000            | 3,600                                                          | .0/.2                                                                                                                                                               | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | .0/.6                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                  | 0       | 650                               | 600                         |
| 25,000            | 3,700                                                          | .0/.2                                                                                                                                                               | .0/.2 | .0/.1 |       |       |       |       |       | .0/.5                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 |       |       | 0                                  | 0       | 675                               | 618                         |

Figure 4.2d(2).

**PROTECTED Personnel Targets**  
**Small Free Rocket**

**DELTA/5 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 600                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 2,100                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 85                                               | 0                                 |
| 4,000             | 2,100                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 110                                              | 0                                 |
| 5,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 135                                              | 0                                 |
| 6,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 165                                              | 0                                 |
| 7,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 190                                              | 0                                 |
| 8,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 220                                              | 0                                 |
| 9,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 245                                              | 0                                 |
| 10,000            | 2,300                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 270                                              | 0                                 |
| 11,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 300                                              | 0                                 |
| 12,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 325                                              | 0                                 |
| 13,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 355                                              | 0                                 |
| 14,000            | 2,300                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 625                                               | 825     | 380                                              | 0                                 |
| 15,000            | 2,300                                                                                   | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 405                                              | 0                                 |
| 16,000            | 2,400                                                                                   | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 435                                              | 0                                 |
| 17,000            | 2,400                                                                                   | .7/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 460                                              | 0                                 |
| 18,000            | 2,400                                                                                   | .6/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.7 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 490                                              | 0                                 |
| 19,000            | 2,400                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 515                                              | 0                                 |
| 20,000            | 2,400                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 540                                              | 0                                 |
| 21,000            | 2,400                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .5/.7 | .4/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 570                                              | 0                                 |
| 22,000            | 2,500                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .5/.7 | .4/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 595                                              | 0                                 |
| 23,000            | 2,500                                                                                   | .5/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 625                                              | 0                                 |
| 24,000            | 2,500                                                                                   | .4/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 650                                              | 0                                 |
| 25,000            | 2,500                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.8                  | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 625                                               | 825     | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.2d(3).

SFR 1

<sup>1</sup>Small Free Rocket.

# PROTECTED Personnel Targets Small Free Rocket

LOW Airburst  
 Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |  |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br>(meters) |         | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------|---------|-----------------------------------------|-----------------------------------|
|                   |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |  | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |  | Target radius (meters) |       |       |       |       |       |       |       |                                          |         |                                         |                                   |
|                   |                                                                            | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 |  | 600                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 2,000 | 2,400 | Prompt                                   | Delayed |                                         |                                   |
| 3,000             | 4,100                                                                      | .9/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .1/.2 | .1/.1 | 700                                      | 900     | 85                                      | 118                               |
| 4,000             | 4,100                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .1/.2 | .1/.1 | 675                                      | 900     | 110                                     | 135                               |
| 5,000             | 4,200                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.3 | .1/.2 | .1/.1 | 675                                      | 900     | 135                                     | 153                               |
| 6,000             | 4,200                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 675                                      | 900     | 165                                     | 170                               |
| 7,000             | 4,200                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 650                                      | 875     | 190                                     | 188                               |
| 8,000             | 4,200                                                                      | .8/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 650                                      | 875     | 220                                     | 205                               |
| 9,000             | 4,200                                                                      | .7/.9                                                                                                                                                                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 625                                      | 875     | 245                                     | 223                               |
| 10,000            | 4,200                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 625                                      | 850     | 270                                     | 240                               |
| 11,000            | 4,300                                                                      | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 600                                      | 850     | 300                                     | 258                               |
| 12,000            | 4,300                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 600                                      | 825     | 325                                     | 275                               |
| 13,000            | 4,300                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | .8/.9                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 575                                      | 825     | 355                                     | 293                               |
| 14,000            | 4,300                                                                      | .6/.8                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | .8/.9                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 550                                      | 800     | 380                                     | 310                               |
| 15,000            | 4,300                                                                      | .5/.7                                                                                                                                                                  | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 |       |  | .8/.9                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 525                                      | 800     | 405                                     | 328                               |
| 16,000            | 4,300                                                                      | .5/.7                                                                                                                                                                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 |       |  | .8/.9                  | .6/.8 | .5/.6 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | 500                                      | 775     | 435                                     | 345                               |
| 17,000            | 4,400                                                                      | .4/.7                                                                                                                                                                  | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       |  | .8/.9                  | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .0/.1 | 475                                      | 750     | 460                                     | 363                               |
| 18,000            | 4,400                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       |  | .7/.9                  | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .0/.1 | 450                                      | 725     | 490                                     | 380                               |
| 19,000            | 4,400                                                                      | .3/.6                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       |  | .7/.9                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | 400                                      | 725     | 515                                     | 398                               |
| 20,000            | 4,400                                                                      | .3/.6                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.2 | .0/.2 |       |       |  | .6/.8                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | 350                                      | 700     | 540                                     | 415                               |
| 21,000            | 4,400                                                                      | .2/.5                                                                                                                                                                  | .1/.4 | .1/.3 | .0/.2 | .0/.1 |       |       |  | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | 300                                      | 675     | 570                                     | 433                               |
| 22,000            | 4,500                                                                      | .1/.5                                                                                                                                                                  | .1/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |  | .6/.8                  | .4/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 250                                      | 650     | 595                                     | 450                               |
| 23,000            | 4,500                                                                      | .1/.5                                                                                                                                                                  | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |  | .5/.8                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 175                                      | 625     | 625                                     | 468                               |
| 24,000            | 4,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |  | .5/.7                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | 0                                        | 575     | 650                                     | 485                               |
| 25,000            | 4,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |  | .4/.7                  | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | 0                                        | 550     | 675                                     | 503                               |

Figure 4.2e(1).

## HIGH Airburst Reduces intensity of induced contamination. Precludes fallout.

| Range    | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br><br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |  |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>$R_D$<br><br>(meters) |         | Offset<br>distance<br>$d_o$<br><br>(meters) | Height<br>of<br>burst<br><br>(meters) |  |
|----------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------------|---------|---------------------------------------------|---------------------------------------|--|
|          |                                                                                | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |  | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                              |         |                                             |                                       |  |
|          |                                                                                | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |  | Target radius (meters) |       |       |       |       |       |       |       |                                              |         |                                             |                                       |  |
|          |                                                                                | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 |  | 600                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | Prompt                                       | Delayed |                                             |                                       |  |
| (meters) |                                                                                |                                                                                                                                                                        |       |       |       |       |       |       |  |                        |       |       |       |       |       |       |       |                                              |         |                                             |                                       |  |
| 3,000    | 4,100                                                                          | .8/.9                                                                                                                                                                  | .6/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 625                                          | 875     | 85                                          | 280                                   |  |
| 4,000    | 4,100                                                                          | .8/.9                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |  | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625                                          | 850     | 110                                         | 297                                   |  |
| 5,000    | 4,200                                                                          | .8/.9                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600                                          | 850     | 135                                         | 315                                   |  |
| 6,000    | 4,200                                                                          | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 600                                          | 825     | 165                                         | 332                                   |  |
| 7,000    | 4,200                                                                          | .7/.8                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 575                                          | 825     | 190                                         | 350                                   |  |
| 8,000    | 4,200                                                                          | .7/.8                                                                                                                                                                  | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 |       |  | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 550                                          | 800     | 220                                         | 367                                   |  |
| 9,000    | 4,200                                                                          | .6/.8                                                                                                                                                                  | .4/.5 | .2/.4 | .1/.2 | .1/.2 | .1/.1 |       |  | .9/.9                  | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 525                                          | 800     | 245                                         | 385                                   |  |
| 10,000   | 4,200                                                                          | .6/.7                                                                                                                                                                  | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       |  | .9/.9                  | .7/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 500                                          | 775     | 270                                         | 402                                   |  |
| 11,000   | 4,300                                                                          | .5/.7                                                                                                                                                                  | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       |  | .8/.9                  | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 475                                          | 750     | 300                                         | 420                                   |  |
| 12,000   | 4,300                                                                          | .5/.7                                                                                                                                                                  | .3/.4 | .1/.3 | .1/.2 | .1/.1 |       |       |  | .8/.9                  | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 450                                          | 725     | 325                                         | 437                                   |  |
| 13,000   | 4,300                                                                          | .4/.6                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       |       |  | .8/.9                  | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 400                                          | 725     | 355                                         | 455                                   |  |
| 14,000   | 4,300                                                                          | .3/.6                                                                                                                                                                  | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       |       |  | .8/.9                  | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 350                                          | 700     | 380                                         | 472                                   |  |
| 15,000   | 4,300                                                                          | .3/.5                                                                                                                                                                  | .1/.4 | .1/.2 | .0/.2 | .0/.1 |       |       |  | .7/.9                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 300                                          | 675     | 405                                         | 490                                   |  |
| 16,000   | 4,300                                                                          | .2/.5                                                                                                                                                                  | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |  | .7/.8                  | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 250                                          | 650     | 435                                         | 507                                   |  |
| 17,000   | 4,400                                                                          | .1/.5                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |  | .6/.8                  | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 175                                          | 625     | 460                                         | 525                                   |  |
| 18,000   | 4,400                                                                          | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |  | .6/.8                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 0                                            | 575     | 490                                         | 542                                   |  |
| 19,000   | 4,400                                                                          | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |  | .5/.8                  | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0                                            | 550     | 515                                         | 560                                   |  |
| 20,000   | 4,400                                                                          | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |  | .5/.7                  | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0                                            | 500     | 540                                         | 577                                   |  |
| 21,000   | 4,400                                                                          | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |  | .4/.7                  | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 |       | 0                                            | 475     | 570                                         | 595                                   |  |
| 22,000   | 4,400                                                                          | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |  | .3/.7                  | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                            | 425     | 595                                         | 612                                   |  |
| 23,000   | 4,500                                                                          | .0/.3                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |  | .3/.6                  | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                            | 350     | 625                                         | 630                                   |  |
| 24,000   | 4,500                                                                          | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |  | .2/.6                  | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                            | 275     | 650                                         | 647                                   |  |
| 25,000   | 4,500                                                                          | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |  | .0/.6                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                                            | 175     | 675                                         | 665                                   |  |

Figure 4.2e(2).

**PROTECTED Personnel Targets**  
**Small Free Rocket**

**ECHO/10 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |                                   |
|                   |                                                                                         | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt                                            | Delayed |                                                  |                                   |
| 3,000             | 2,700                                                                                   | .9/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 85                                               | 0                                 |
| 4,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 110                                              | 0                                 |
| 5,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 135                                              | 0                                 |
| 6,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 165                                              | 0                                 |
| 7,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 190                                              | 0                                 |
| 8,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 220                                              | 0                                 |
| 9,000             | 2,800                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 245                                              | 0                                 |
| 10,000            | 2,800                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 270                                              | 0                                 |
| 11,000            | 2,800                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 300                                              | 0                                 |
| 12,000            | 2,800                                                                                   | .7/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 325                                              | 0                                 |
| 13,000            | 2,800                                                                                   | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 355                                              | 0                                 |
| 14,000            | 2,900                                                                                   | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 380                                              | 0                                 |
| 15,000            | 2,900                                                                                   | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 405                                              | 0                                 |
| 16,000            | 2,900                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 435                                              | 0                                 |
| 17,000            | 2,900                                                                                   | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 460                                              | 0                                 |
| 18,000            | 2,900                                                                                   | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 490                                              | 0                                 |
| 19,000            | 2,900                                                                                   | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 515                                              | 0                                 |
| 20,000            | 3,000                                                                                   | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 540                                              | 0                                 |
| 21,000            | 3,000                                                                                   | .5/.8                                                                                                                                                                  | .4/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 570                                              | 0                                 |
| 22,000            | 3,000                                                                                   | .5/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 595                                              | 0                                 |
| 23,000            | 3,000                                                                                   | .5/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 625                                              | 0                                 |
| 24,000            | 3,000                                                                                   | .5/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 650                                              | 0                                 |
| 25,000            | 3,000                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.8                  | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 700                                               | 925     | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.2e(3).

SFR 1

**MATERIEL Targets**  
**Small Free Rocket**
**LOW Airburst**  
**Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |       |       |       |  |  |  | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |    |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|--|--|--|-----------------------------------------|-----------------------------------|-------------------------------|----|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               | TANKS AND ARTILLERY    |       |       |       |  |  |  |                                         |                                   |                               |    |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |       |       |  |  |  |                                         |                                   | Prob min<br>$R_D$<br>(meters) |    |
|                   |                                                                            | 50                                                                                                                                                                     | 100   | 150   | 200   | 250   | 300   | 350   | 400   |                               | 100                    | 150   | 200   | 250   |  |  |  |                                         |                                   |                               |    |
| 3,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 175                           | .1/.5                  | .0/.3 | .0/.2 | .0/.1 |  |  |  |                                         | 50                                | 85                            | 77 |
| 4,000             | 1,600                                                                      | .9/.9                                                                                                                                                                  | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .3/.4 | .2/.3 | .1/.2 | 150                           | .0/.3                  | .0/.2 | .0/.1 |       |  |  |  | 0                                       | 110                               | 94                            |    |
| 5,000             | 1,600                                                                      | .2/.8                                                                                                                                                                  | .2/.7 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 50                            | .0/.2                  | .0/.1 |       |       |  |  |  | 0                                       | 135                               | 112                           |    |
| 6,000             | 1,600                                                                      | .0/.7                                                                                                                                                                  | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                             | .0/.1                  |       |       |       |  |  |  | 0                                       | 165                               | 129                           |    |
| 7,000             | 1,600                                                                      | .0/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             | .0/.1                  |       |       |       |  |  |  | 0                                       | 190                               | 147                           |    |
| 8,000             | 1,700                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.1                  |       |       |       |  |  |  | 0                                       | 220                               | 164                           |    |
| 9,000             | 1,700                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | 0                             | .0/.1                  |       |       |       |  |  |  | 0                                       | 245                               | 182                           |    |
| 10,000            | 1,700                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                             | .0/.1                  |       |       |       |  |  |  | 0                                       | 270                               | 199                           |    |
| 11,000            | 1,700                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 300                               | 217                           |    |
| 12,000            | 1,700                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 325                               | 234                           |    |
| 13,000            | 1,700                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 355                               | 252                           |    |
| 14,000            | 1,800                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 380                               | 269                           |    |
| 15,000            | 1,800                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 405                               | 287                           |    |
| 16,000            | 1,800                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 435                               | 304                           |    |
| 17,000            | 1,800                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 460                               | 322                           |    |
| 18,000            | 1,800                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 490                               | 339                           |    |
| 19,000            | 1,800                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 515                               | 357                           |    |
| 20,000            | 1,900                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 540                               | 374                           |    |
| 21,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 570                               | 392                           |    |
| 22,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 595                               | 409                           |    |
| 23,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 625                               | 427                           |    |
| 24,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 650                               | 444                           |    |
| 25,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |       |       |  |  |  | 0                                       | 675                               | 462                           |    |

Figure 4.3a(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |  |  |                               |                        |  |  |  |  |  |  | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|--|--|-------------------------------|------------------------|--|--|--|--|--|--|-----------------------------------------|-----------------------------------|-------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |  |  |                               | TANKS AND ARTILLERY    |  |  |  |  |  |  |                                         |                                   |                               |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |  |  | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |  |  |  |  |  |  |                                         |                                   | Prob min<br>$R_D$<br>(meters) |
|                   |                                                                            | 50                                                                                                                                                                     | 100   | 150   | 200   | 250   | 300   |  |  |                               | 100                    |  |  |  |  |  |  |                                         |                                   |                               |
| 3,000             | 1,600                                                                      | .2/.8                                                                                                                                                                  | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |  |  | 25                            | .0/.1                  |  |  |  |  |  |  | 0                                       | 85                                | 137                           |
| 4,000             | 1,600                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 110                               | 154                           |
| 5,000             | 1,600                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 135                               | 172                           |
| 6,000             | 1,600                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 165                               | 189                           |
| 7,000             | 1,600                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 190                               | 207                           |
| 8,000             | 1,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 220                               | 224                           |
| 9,000             | 1,700                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 245                               | 242                           |
| 10,000            | 1,700                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 270                               | 259                           |
| 11,000            | 1,700                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 300                               | 277                           |
| 12,000            | 1,700                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 325                               | 294                           |
| 13,000            | 1,700                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 355                               | 312                           |
| 14,000            | 1,700                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 380                               | 329                           |
| 15,000            | 1,800                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 405                               | 347                           |
| 16,000            | 1,800                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 435                               | 364                           |
| 17,000            | 1,800                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 460                               | 382                           |
| 18,000            | 1,800                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 490                               | 399                           |
| 19,000            | 1,800                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 515                               | 417                           |
| 20,000            | 1,800                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 540                               | 434                           |
| 21,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 570                               | 452                           |
| 22,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 595                               | 469                           |
| 23,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 625                               | 487                           |
| 24,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 650                               | 504                           |
| 25,000            | 1,900                                                                      |                                                                                                                                                                        |       |       |       |       |       |  |  | 0                             |                        |  |  |  |  |  |  | 0                                       | 675                               | 522                           |

Figure 4.3a(2).



**MATERIEL Targets**  
**Small Free Rocket**

**ALFA/.5 KT**

**IMPACT Burst**  
**Produces fallout**

| Range    | Minimum safe distance <sup>1</sup><br>(negligible risk, UnW Ex) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                         |                        |                     |       |       |       |  |                         | Offset distance d <sub>0</sub> | Height of burst |          |          |   |
|----------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------|------------------------|---------------------|-------|-------|-------|--|-------------------------|--------------------------------|-----------------|----------|----------|---|
|          |                                                                 | WHEELED VEHICLES                                                                                                                                                    |       |       |       |       |       |       |       |                         |                        | TANKS AND ARTILLERY |       |       |       |  |                         |                                |                 |          |          |   |
|          |                                                                 | Target radius (meters)                                                                                                                                              |       |       |       |       |       |       |       | Prob min R <sub>D</sub> | Target radius (meters) |                     |       |       |       |  | Prob min R <sub>D</sub> |                                |                 |          |          |   |
|          |                                                                 | 50                                                                                                                                                                  | 100   | 150   | 200   | 250   | 300   | 350   | 400   |                         | 50                     | 100                 | 150   | 200   | 250   |  |                         |                                |                 |          |          |   |
| (meters) | (meters)                                                        | 50                                                                                                                                                                  | 100   | 150   | 200   | 250   | 300   | 350   | 400   | (meters)                | 50                     | 100                 | 150   | 200   | 250   |  |                         |                                |                 | (meters) | (meters) |   |
| 3,000    | 1,600                                                           | .9/.9                                                                                                                                                               | .7/.9 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 125                     | .6/.8                  | .4/.6               | .3/.3 | .1/.2 | .1/.1 |  |                         |                                |                 | 100      | 85       | 0 |
| 4,000    | 1,600                                                           | .7/.9                                                                                                                                                               | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 125                     | .3/.7                  | .3/.5               | .2/.3 | .1/.2 | .1/.1 |  |                         |                                |                 | 100      | 110      | 0 |
| 5,000    | 1,600                                                           | .5/.8                                                                                                                                                               | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 125                     | .1/.6                  | .2/.5               | .2/.3 | .1/.2 | .1/.1 |  |                         |                                |                 | 100      | 135      | 0 |
| 6,000    | 1,600                                                           | .3/.7                                                                                                                                                               | .3/.7 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 125                     | .0/.5                  | .1/.4               | .1/.3 | .1/.2 | .1/.1 |  |                         |                                |                 | 100      | 165      | 0 |
| 7,000    | 1,600                                                           | .1/.6                                                                                                                                                               | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 |       | 125                     | .0/.4                  | .0/.3               | .1/.3 | .1/.2 | .1/.1 |  |                         |                                |                 | 100      | 190      | 0 |
| 8,000    | 1,700                                                           | .0/.6                                                                                                                                                               | .1/.5 | .1/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.1 |       | 125                     | .0/.3                  | .0/.3               | .0/.2 | .1/.2 | .1/.1 |  |                         |                                |                 | 100      | 220      | 0 |
| 9,000    | 1,700                                                           | .0/.5                                                                                                                                                               | .0/.5 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 |       | 125                     | .0/.3                  | .0/.2               | .0/.2 | .0/.2 | .0/.1 |  |                         |                                |                 | 100      | 245      | 0 |
| 10,000   | 1,700                                                           | .0/.4                                                                                                                                                               | .0/.4 | .0/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 |       | 125                     | .0/.2                  | .0/.2               | .0/.2 | .0/.1 |       |  |                         |                                |                 | 100      | 270      | 0 |
| 11,000   | 1,700                                                           | .0/.4                                                                                                                                                               | .0/.4 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.1 |       | 125                     | .0/.2                  | .0/.2               | .0/.2 | .0/.1 |       |  |                         |                                |                 | 100      | 300      | 0 |
| 12,000   | 1,700                                                           | .0/.3                                                                                                                                                               | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .1/.2 | .1/.1 |       | 125                     | .0/.2                  | .0/.2               | .0/.1 |       |       |  |                         |                                |                 | 100      | 325      | 0 |
| 13,000   | 1,800                                                           | .0/.3                                                                                                                                                               | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 125                     | .0/.2                  | .0/.1               |       |       |       |  |                         |                                |                 | 100      | 355      | 0 |
| 14,000   | 1,800                                                           | .0/.3                                                                                                                                                               | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 380      | 0 |
| 15,000   | 1,800                                                           | .0/.3                                                                                                                                                               | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 405      | 0 |
| 16,000   | 1,800                                                           | .0/.2                                                                                                                                                               | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 435      | 0 |
| 17,000   | 1,800                                                           | .0/.2                                                                                                                                                               | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 460      | 0 |
| 18,000   | 1,800                                                           | .0/.2                                                                                                                                                               | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 490      | 0 |
| 19,000   | 1,800                                                           | .0/.2                                                                                                                                                               | .0/.2 | .0/.1 |       |       |       |       |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 515      | 0 |
| 20,000   | 1,900                                                           | .0/.2                                                                                                                                                               | .0/.1 |       |       |       |       |       |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 540      | 0 |
| 21,000   | 1,900                                                           | .0/.1                                                                                                                                                               |       |       |       |       |       |       |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 570      | 0 |
| 22,000   | 1,900                                                           | .0/.1                                                                                                                                                               |       |       |       |       |       |       |       | 125                     | .0/.1                  |                     |       |       |       |  |                         |                                |                 | 100      | 595      | 0 |
| 23,000   | 1,900                                                           | .0/.1                                                                                                                                                               |       |       |       |       |       |       |       | 125                     |                        |                     |       |       |       |  |                         |                                |                 | 100      | 625      | 0 |
| 24,000   | 1,900                                                           | .0/.1                                                                                                                                                               |       |       |       |       |       |       |       | 125                     |                        |                     |       |       |       |  |                         |                                |                 | 100      | 650      | 0 |
| 25,000   | 2,000                                                           | .0/.1                                                                                                                                                               |       |       |       |       |       |       |       | 125                     |                        |                     |       |       |       |  |                         |                                |                 | 100      | 675      | 0 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.3a(3).

SFR 1

**MATERIEL Targets**  
**Small Free Rocket**
**LOW Airburst**  
**Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |                     |       |       |       |       |                               | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |     |     |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|---------------------|-------|-------|-------|-------|-------------------------------|-----------------------------------------|-----------------------------------|-----|-----|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               |                        | TANKS AND ARTILLERY |       |       |       |       |                               |                                         |                                   |     |     |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |                     |       |       |       |       | Prob min<br>$R_D$<br>(meters) |                                         |                                   |     |     |
|                   |                                                                            | 100                                                                                                                                                                    | 150   | 200   | 250   | 300   | 350   | 400   | 450   |                               | 100                    | 150                 | 200   | 250   | 300   | 350   |                               |                                         |                                   |     |     |
| 3,000             | 1,900                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | 225                           | .5/.8                  | .2/.6               | .1/.4 | .1/.3 | .0/.2 | .0/.1 |                               |                                         | 75                                | 85  | 83  |
| 4,000             | 1,900                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.9 | .6/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | 225                           | .1/.6                  | .0/.3               | .0/.2 | .0/.1 |       |       |                               |                                         | 50                                | 110 | 100 |
| 5,000             | 2,000                                                                      | .8/.9                                                                                                                                                                  | .7/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | 175                           | .0/.4                  | .0/.2               | .0/.1 |       |       |       |                               |                                         | 0                                 | 135 | 118 |
| 6,000             | 2,000                                                                      | .4/.8                                                                                                                                                                  | .2/.7 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | 75                            | .0/.3                  | .0/.2               | .0/.1 |       |       |       |                               |                                         | 0                                 | 165 | 135 |
| 7,000             | 2,000                                                                      | .0/.8                                                                                                                                                                  | .0/.7 | .0/.6 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | 25                            | .0/.2                  | .0/.1               |       |       |       |       |                               |                                         | 0                                 | 190 | 153 |
| 8,000             | 2,000                                                                      | .0/.7                                                                                                                                                                  | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0                             | .0/.2                  | .0/.1               |       |       |       |       |                               |                                         | 0                                 | 220 | 170 |
| 9,000             | 2,000                                                                      | .0/.5                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                             | .0/.1                  |                     |       |       |       |       |                               |                                         | 0                                 | 245 | 188 |
| 10,000            | 2,100                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             | .0/.1                  |                     |       |       |       |       |                               |                                         | 0                                 | 270 | 205 |
| 11,000            | 2,100                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.1                  |                     |       |       |       |       |                               |                                         | 0                                 | 300 | 223 |
| 12,000            | 2,100                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.1                  |                     |       |       |       |       |                               |                                         | 0                                 | 325 | 240 |
| 13,000            | 2,100                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                             | .0/.1                  |                     |       |       |       |       |                               |                                         | 0                                 | 355 | 258 |
| 14,000            | 2,100                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             | .0/.1                  |                     |       |       |       |       |                               |                                         | 0                                 | 380 | 275 |
| 15,000            | 2,100                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             | .0/.1                  |                     |       |       |       |       |                               |                                         | 0                                 | 405 | 293 |
| 16,000            | 2,200                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 435 | 310 |
| 17,000            | 2,200                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 460 | 328 |
| 18,000            | 2,200                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 490 | 345 |
| 19,000            | 2,200                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 515 | 363 |
| 20,000            | 2,200                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 540 | 380 |
| 21,000            | 2,200                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 570 | 398 |
| 22,000            | 2,300                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 595 | 415 |
| 23,000            | 2,300                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 625 | 433 |
| 24,000            | 2,300                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 650 | 450 |
| 25,000            | 2,300                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |                     |       |       |       |       |                               |                                         | 0                                 | 675 | 468 |

Figure 4.3b(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |  |  |  |  |  |  | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |  |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|--|--|--|--|--|--|-----------------------------------------|-----------------------------------|-------------------------------|--|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               | TANKS AND ARTILLERY    |  |  |  |  |  |  |                                         |                                   |                               |  |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |  |  |  |  |  |  |                                         |                                   | Prob min<br>$R_D$<br>(meters) |  |
|                   |                                                                            | 100                                                                                                                                                                    | 150   | 200   | 250   | 300   | 350   | 400   | 450   |                               | 100                    |  |  |  |  |  |  |                                         |                                   |                               |  |
| 3,000             | 1,900                                                                      | .7/.9                                                                                                                                                                  | .3/.8 | .2/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | 100                           | .0/.1                  |  |  |  |  |  |  | 0                                       | 85                                | 158                           |  |
| 4,000             | 1,900                                                                      | .1/.7                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 25                            |                        |  |  |  |  |  |  | 0                                       | 110                               | 175                           |  |
| 5,000             | 2,000                                                                      | .0/.5                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 135                               | 193                           |  |
| 6,000             | 2,000                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 165                               | 210                           |  |
| 7,000             | 2,000                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 190                               | 228                           |  |
| 8,000             | 2,000                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 220                               | 245                           |  |
| 9,000             | 2,000                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 245                               | 263                           |  |
| 10,000            | 2,000                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 270                               | 280                           |  |
| 11,000            | 2,100                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 300                               | 298                           |  |
| 12,000            | 2,100                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 325                               | 315                           |  |
| 13,000            | 2,100                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 355                               | 333                           |  |
| 14,000            | 2,100                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 380                               | 350                           |  |
| 15,000            | 2,100                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 405                               | 368                           |  |
| 16,000            | 2,100                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 435                               | 385                           |  |
| 17,000            | 2,200                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 460                               | 403                           |  |
| 18,000            | 2,200                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 490                               | 420                           |  |
| 19,000            | 2,200                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 515                               | 438                           |  |
| 20,000            | 2,200                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 540                               | 455                           |  |
| 21,000            | 2,200                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 570                               | 473                           |  |
| 22,000            | 2,200                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 595                               | 490                           |  |
| 23,000            | 2,300                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 625                               | 508                           |  |
| 24,000            | 2,300                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 650                               | 525                           |  |
| 25,000            | 2,300                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |  |  |  |  |  |  | 0                                       | 675                               | 543                           |  |

Figure 4.3b(2).

**MATERIEL Targets**  
**Small Free Rocket**

**BRAVO/1 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                                        |                        |       |       |       |       |       |       | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |                                        |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------|------------------------|-------|-------|-------|-------|-------|-------|--------------------------------------------------|-----------------------------------|----------------------------------------|
|                   |                                                                                         | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                                        | TANKS AND ARTILLERY    |       |       |       |       |       |       |                                                  |                                   |                                        |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                                  |                                   | Prob min<br>R <sub>D</sub><br>(meters) |
|                   |                                                                                         | 50                                                                                                                                                                     | 100   | 150   | 200   | 250   | 300   | 350   | 400   |                                        | 50                     | 100   | 150   | 200   | 250   | 300   | 350   |                                                  |                                   |                                        |
| 3,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 175                                    | .8/.9                  | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 125                                              | 85                                | 0                                      |
| 4,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | 175                                    | .6/.9                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 125                                              | 110                               | 0                                      |
| 5,000             | 2,000                                                                                   | .8/.9                                                                                                                                                                  | .7/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | 175                                    | .4/.8                  | .3/.6 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 125                                              | 135                               | 0                                      |
| 6,000             | 2,000                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 175                                    | .2/.7                  | .2/.6 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 125                                              | 165                               | 0                                      |
| 7,000             | 2,000                                                                                   | .5/.8                                                                                                                                                                  | .4/.8 | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 175                                    | .0/.6                  | .1/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 125                                              | 190                               | 0                                      |
| 8,000             | 2,000                                                                                   | .3/.8                                                                                                                                                                  | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 175                                    | .0/.5                  | .0/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 125                                              | 220                               | 0                                      |
| 9,000             | 2,000                                                                                   | .1/.7                                                                                                                                                                  | .2/.6 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | 175                                    | .0/.4                  | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.1 |       | 125                                              | 245                               | 0                                      |
| 10,000            | 2,100                                                                                   | .0/.6                                                                                                                                                                  | .1/.6 | .1/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | 175                                    | .0/.4                  | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.1 |       | 125                                              | 270                               | 0                                      |
| 11,000            | 2,100                                                                                   | .0/.6                                                                                                                                                                  | .0/.5 | .1/.5 | .1/.4 | .1/.4 | .2/.3 | .1/.2 | .1/.2 | 175                                    | .0/.3                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .1/.1 |       | 125                                              | 300                               | 0                                      |
| 12,000            | 2,100                                                                                   | .0/.5                                                                                                                                                                  | .0/.5 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 175                                    | .0/.3                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 125                                              | 325                               | 0                                      |
| 13,000            | 2,100                                                                                   | .0/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 175                                    | .0/.3                  | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 125                                              | 355                               | 0                                      |
| 14,000            | 2,100                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | 175                                    | .0/.2                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 125                                              | 380                               | 0                                      |
| 15,000            | 2,100                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | 175                                    | .0/.2                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 125                                              | 405                               | 0                                      |
| 16,000            | 2,200                                                                                   | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .1/.2 | 175                                    | .0/.2                  | .0/.2 | .0/.2 | .0/.1 |       |       |       | 125                                              | 435                               | 0                                      |
| 17,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 175                                    | .0/.2                  | .0/.2 | .0/.1 |       |       |       |       | 125                                              | 460                               | 0                                      |
| 18,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 175                                    | .0/.2                  | .0/.1 |       |       |       |       |       | 125                                              | 490                               | 0                                      |
| 19,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 175                                    | .0/.1                  |       |       |       |       |       |       | 125                                              | 515                               | 0                                      |
| 20,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 175                                    | .0/.1                  |       |       |       |       |       |       | 125                                              | 540                               | 0                                      |
| 21,000            | 2,200                                                                                   | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 |       | 175                                    | .0/.1                  |       |       |       |       |       |       | 125                                              | 570                               | 0                                      |
| 22,000            | 2,300                                                                                   | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 175                                    | .0/.1                  |       |       |       |       |       |       | 125                                              | 595                               | 0                                      |
| 23,000            | 2,300                                                                                   | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 175                                    | .0/.1                  |       |       |       |       |       |       | 125                                              | 625                               | 0                                      |
| 24,000            | 2,300                                                                                   | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 175                                    | .0/.1                  |       |       |       |       |       |       | 125                                              | 650                               | 0                                      |
| 25,000            | 2,300                                                                                   | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 175                                    | .0/.1                  |       |       |       |       |       |       | 125                                              | 675                               | 0                                      |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.3b(3).

SFR 1

**MATERIEL Targets**  
**Small Free Rocket**

**LOW Airburst**  
**Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |       |       |       |       |       |       |       | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-----------------------------------------|-----------------------------------|-------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               | TANKS AND ARTILLERY    |       |       |       |       |       |       |       |                                         |                                   |                               |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |       |       |       |       |       |       |                                         |                                   | Prob min<br>$R_D$<br>(meters) |
|                   |                                                                            | 350                                                                                                                                                                    | 400   | 450   | 500   | 550   | 600   | 650   | 700   |                               | 100                    | 150   | 200   | 250   | 300   | 350   | 400   | 450   |                                         |                                   |                               |
| 3,000             | 2,300                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 325                           | .9/.9                  | .7/.9 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | 150                                     | 85                                | 91                            |
| 4,000             | 2,300                                                                      | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 300                           | .5/.8                  | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 100                                     | 110                               | 108                           |
| 5,000             | 2,300                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.3 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 275                           | .2/.7                  | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 |       | 50                                      | 135                               | 126                           |
| 6,000             | 2,300                                                                      | .5/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 250                           | .0/.6                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 25                                      | 165                               | 143                           |
| 7,000             | 2,300                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 150                           | .0/.5                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                                       | 190                               | 161                           |
| 8,000             | 2,400                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 75                            | .0/.4                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                                       | 220                               | 178                           |
| 9,000             | 2,400                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 25                            | .0/.3                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                       | 245                               | 196                           |
| 10,000            | 2,400                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             | .0/.2                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                       | 270                               | 213                           |
| 11,000            | 2,400                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 300                               | 231                           |
| 12,000            | 2,400                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 325                               | 248                           |
| 13,000            | 2,400                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 355                               | 266                           |
| 14,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 380                               | 283                           |
| 15,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 405                               | 301                           |
| 16,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 435                               | 318                           |
| 17,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 460                               | 336                           |
| 18,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 490                               | 353                           |
| 19,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 515                               | 371                           |
| 20,000            | 2,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 540                               | 388                           |
| 21,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 570                               | 406                           |
| 22,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 595                               | 423                           |
| 23,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |       |       |       |       |       |       | 0                                       | 625                               | 441                           |
| 24,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |       |       |       |       |       |       | 0                                       | 650                               | 458                           |
| 25,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |       |       |       |       |       |       | 0                                       | 675                               | 476                           |

Figure 4.3c(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |       |  |  |  |  |  |  | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|--|--|--|--|--|--|-----------------------------------------|-----------------------------------|-------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               | TANKS AND ARTILLERY    |       |  |  |  |  |  |  |                                         |                                   |                               |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |  |  |  |  |  |  |                                         |                                   | Prob min<br>$R_D$<br>(meters) |
|                   |                                                                            | 200                                                                                                                                                                    | 250   | 300   | 350   | 400   | 450   | 500   | 550   |                               | 100                    | 150   |  |  |  |  |  |  |                                         |                                   |                               |
| 3,000             | 2,300                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | 225                           | .0/.2                  | .0/.1 |  |  |  |  |  |  | 0                                       | 85                                | 185                           |
| 4,000             | 2,300                                                                      | .3/.8                                                                                                                                                                  | .2/.7 | .1/.6 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | 100                           | .0/.1                  |       |  |  |  |  |  |  | 0                                       | 110                               | 202                           |
| 5,000             | 2,300                                                                      | .1/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 50                            | .0/.1                  |       |  |  |  |  |  |  | 0                                       | 135                               | 220                           |
| 6,000             | 2,300                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             | .0/.1                  |       |  |  |  |  |  |  | 0                                       | 165                               | 237                           |
| 7,000             | 2,300                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 190                               | 255                           |
| 8,000             | 2,400                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 220                               | 272                           |
| 9,000             | 2,400                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 245                               | 290                           |
| 10,000            | 2,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 270                               | 307                           |
| 11,000            | 2,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 300                               | 325                           |
| 12,000            | 2,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 325                               | 342                           |
| 13,000            | 2,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 355                               | 360                           |
| 14,000            | 2,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 380                               | 377                           |
| 15,000            | 2,500                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 405                               | 395                           |
| 16,000            | 2,500                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 435                               | 412                           |
| 17,000            | 2,500                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 460                               | 430                           |
| 18,000            | 2,500                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 490                               | 447                           |
| 19,000            | 2,500                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 515                               | 465                           |
| 20,000            | 2,500                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 540                               | 482                           |
| 21,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 570                               | 500                           |
| 22,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 595                               | 517                           |
| 23,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 625                               | 535                           |
| 24,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 650                               | 552                           |
| 25,000            | 2,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0                             |                        |       |  |  |  |  |  |  | 0                                       | 675                               | 570                           |

Figure 4.3c(2).

**MATERIEL Targets**  
**Small Free Rocket**

**CHARLIE/2 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                                        |                        |                     |       |       |       |       |       |       |                                        | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------|------------------------|---------------------|-------|-------|-------|-------|-------|-------|----------------------------------------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                                        |                        | TANKS AND ARTILLERY |       |       |       |       |       |       |                                        |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |                     |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) |                                                  |                                   |
|                   |                                                                                         | 150                                                                                                                                                                    | 200   | 250   | 300   | 350   | 400   | 450   | 500   |                                        | 50                     | 100                 | 150   | 200   | 250   | 300   | 350   | 400   |                                        |                                                  |                                   |
| 3,000             | 1,900                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | 225                                    | .9/.9                  | .8/.9               | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 150                                    | 85                                               | 0                                 |
| 4,000             | 1,900                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | 225                                    | .8/.9                  | .7/.9               | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 150                                    | 110                                              | 0                                 |
| 5,000             | 1,900                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .5/.5 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | 225                                    | .7/.9                  | .6/.8               | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 150                                    | 135                                              | 0                                 |
| 6,000             | 1,900                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 225                                    | .5/.8                  | .4/.8               | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 150                                    | 165                                              | 0                                 |
| 7,000             | 1,900                                                                                   | .6/.8                                                                                                                                                                  | .5/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 225                                    | .3/.7                  | .3/.7               | .3/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 150                                    | 190                                              | 0                                 |
| 8,000             | 1,900                                                                                   | .5/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 225                                    | .1/.7                  | .2/.6               | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 150                                    | 220                                              | 0                                 |
| 9,000             | 2,000                                                                                   | .4/.8                                                                                                                                                                  | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 225                                    | .0/.6                  | .1/.5               | .1/.5 | .1/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 150                                    | 245                                              | 0                                 |
| 10,000            | 2,000                                                                                   | .4/.7                                                                                                                                                                  | .3/.6 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 225                                    | .0/.5                  | .0/.5               | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 150                                    | 270                                              | 0                                 |
| 11,000            | 2,000                                                                                   | .2/.7                                                                                                                                                                  | .2/.6 | .3/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | 225                                    | .0/.5                  | .0/.4               | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 150                                    | 300                                              | 0                                 |
| 12,000            | 2,000                                                                                   | .2/.6                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | 225                                    | .0/.4                  | .0/.4               | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 150                                    | 325                                              | 0                                 |
| 13,000            | 2,000                                                                                   | .1/.6                                                                                                                                                                  | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 225                                    | .0/.4                  | .0/.4               | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.1 | 150                                    | 355                                              | 0                                 |
| 14,000            | 2,100                                                                                   | .1/.5                                                                                                                                                                  | .1/.5 | .1/.4 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 225                                    | .0/.4                  | .0/.3               | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.1 | 150                                    | 380                                              | 0                                 |
| 15,000            | 2,100                                                                                   | .0/.5                                                                                                                                                                  | .1/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                    | .0/.3                  | .0/.3               | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .1/.1 | 150                                    | 405                                              | 0                                 |
| 16,000            | 2,100                                                                                   | .0/.5                                                                                                                                                                  | .0/.4 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                    | .0/.3                  | .0/.3               | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 150                                    | 435                                              | 0                                 |
| 17,000            | 2,100                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .1/.3 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                    | .0/.3                  | .0/.2               | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 150                                    | 460                                              | 0                                 |
| 18,000            | 2,100                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                    | .0/.2                  | .0/.2               | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 150                                    | 490                                              | 0                                 |
| 19,000            | 2,100                                                                                   | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | 225                                    | .0/.2                  | .0/.2               | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 150                                    | 515                                              | 0                                 |
| 20,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | 225                                    | .0/.2                  | .0/.2               | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       | 150                                    | 540                                              | 0                                 |
| 21,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .1/.2 | 225                                    | .0/.2                  | .0/.2               | .0/.2 | .0/.2 | .0/.1 |       |       |       | 150                                    | 570                                              | 0                                 |
| 22,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225                                    | .0/.2                  | .0/.2               | .0/.2 | .0/.1 |       |       |       |       | 150                                    | 595                                              | 0                                 |
| 23,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225                                    | .0/.2                  | .0/.2               | .0/.1 |       |       |       |       |       | 150                                    | 625                                              | 0                                 |
| 24,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225                                    | .0/.2                  | .0/.1               |       |       |       |       |       |       | 150                                    | 650                                              | 0                                 |
| 25,000            | 2,200                                                                                   | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225                                    | .0/.1                  |                     |       |       |       |       |       |       | 150                                    | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.3c(3).

SFR 1

<sup>1</sup>Small Free Rocket.

# MATERIEL Targets Small Free Rocket

LOW Airburst  
Precludes fallout

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |       |       |       |       |       |       |       | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-----------------------------------------|-----------------------------------|-------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               | TANKS AND ARTILLERY    |       |       |       |       |       |       |       |                                         |                                   |                               |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |       |       |       |       |       |       |                                         |                                   | Prob min<br>$R_D$<br>(meters) |
|                   |                                                                            | 300                                                                                                                                                                    | 400   | 500   | 600   | 700   | 800   | 900   | 1,000 |                               | 100                    | 200   | 300   | 400   | 500   | 600   | 700   | 800   |                                         |                                   |                               |
| 3,000             | 3,300                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | 500                           | .9/.9                  | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 275                                     | 85                                | 105                           |
| 4,000             | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | 475                           | .9/.9                  | .8/.9 | .4/.7 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | 200                                     | 110                               | 122                           |
| 5,000             | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 450                           | .8/.9                  | .5/.8 | .2/.6 | .1/.4 | .1/.2 | .0/.2 | .0/.1 |       | 150                                     | 135                               | 140                           |
| 6,000             | 3,400                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | 425                           | .5/.8                  | .3/.7 | .1/.5 | .0/.3 | .0/.2 | .0/.1 |       |       | 125                                     | 165                               | 157                           |
| 7,000             | 3,400                                                                      | .8/.9                                                                                                                                                                  | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 400                           | .2/.7                  | .1/.5 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 75                                      | 190                               | 175                           |
| 8,000             | 3,400                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 375                           | .0/.6                  | .0/.2 | .0/.1 |       |       |       |       |       | 25                                      | 220                               | 192                           |
| 9,000             | 3,400                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 275                           | .0/.5                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                       | 245                               | 210                           |
| 10,000            | 3,400                                                                      | .4/.8                                                                                                                                                                  | .2/.7 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | 175                           | .0/.4                  | .0/.1 |       |       |       |       |       |       | 0                                       | 270                               | 227                           |
| 11,000            | 3,400                                                                      | .1/.7                                                                                                                                                                  | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 100                           | .0/.4                  | .0/.1 |       |       |       |       |       |       | 0                                       | 300                               | 245                           |
| 12,000            | 3,500                                                                      | .0/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 50                            | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 325                               | 262                           |
| 13,000            | 3,500                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 355                               | 280                           |
| 14,000            | 3,500                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 380                               | 297                           |
| 15,000            | 3,500                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 405                               | 315                           |
| 16,000            | 3,500                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 435                               | 332                           |
| 17,000            | 3,500                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 460                               | 350                           |
| 18,000            | 3,600                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 490                               | 367                           |
| 19,000            | 3,600                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 515                               | 385                           |
| 20,000            | 3,600                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 540                               | 402                           |
| 21,000            | 3,600                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 570                               | 420                           |
| 22,000            | 3,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 595                               | 437                           |
| 23,000            | 3,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 625                               | 455                           |
| 24,000            | 3,700                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |       |       |       |       | 0                                       | 650                               | 472                           |
| 25,000            | 3,700                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             |                        |       |       |       |       |       |       |       | 0                                       | 675                               | 490                           |

Figure 4.3d(1).

HIGH Airburst  
Reduces intensity of induced contamination. Precludes fallout.

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |     |                               |                        |       |       |  |  |  | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |     |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-------------------------------|------------------------|-------|-------|--|--|--|-----------------------------------------|-----------------------------------|-------------------------------|-----|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |     |                               | TANKS AND ARTILLERY    |       |       |  |  |  |                                         |                                   |                               |     |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       |     | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |       |  |  |  |                                         |                                   | Prob min<br>$R_D$<br>(meters) |     |
|                   |                                                                            | 200                                                                                                                                                                    | 300   | 400   | 500   | 600   | 700   | 800   | 900   | 100 |                               | 150                    | 200   | 250   |  |  |  |                                         |                                   |                               |     |
| 3,000             | 3,300                                                                      | .9/.9                                                                                                                                                                  | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | 375 | .2/.6                         | .0/.3                  | .0/.2 | .0/.1 |  |  |  |                                         | 50                                | 85                            | 233 |
| 4,000             | 3,300                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 325 | .0/.4                         | .0/.2                  | .0/.1 |       |  |  |  |                                         | 0                                 | 110                           | 250 |
| 5,000             | 3,300                                                                      | .7/.9                                                                                                                                                                  | .4/.8 | .2/.7 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | 200 | .0/.3                         | .0/.1                  |       |       |  |  |  |                                         | 0                                 | 135                           | 268 |
| 6,000             | 3,300                                                                      | .3/.8                                                                                                                                                                  | .2/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 125 | .0/.2                         | .0/.1                  |       |       |  |  |  |                                         | 0                                 | 166                           | 285 |
| 7,000             | 3,400                                                                      | .1/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 50  | .0/.1                         |                        |       |       |  |  |  |                                         | 0                                 | 190                           | 303 |
| 8,000             | 3,400                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0   | .0/.1                         |                        |       |       |  |  |  |                                         | 0                                 | 220                           | 320 |
| 9,000             | 3,400                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 0   | .0/.1                         |                        |       |       |  |  |  |                                         | 0                                 | 245                           | 338 |
| 10,000            | 3,400                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | 0   | .0/.1                         |                        |       |       |  |  |  |                                         | 0                                 | 270                           | 355 |
| 11,000            | 3,400                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0   | .0/.1                         |                        |       |       |  |  |  |                                         | 0                                 | 300                           | 373 |
| 12,000            | 3,400                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0   | .0/.1                         |                        |       |       |  |  |  |                                         | 0                                 | 325                           | 390 |
| 13,000            | 3,500                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 355                           | 408 |
| 14,000            | 3,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 380                           | 425 |
| 15,000            | 3,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 405                           | 443 |
| 16,000            | 3,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 435                           | 460 |
| 17,000            | 3,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 460                           | 478 |
| 18,000            | 3,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 490                           | 495 |
| 19,000            | 3,600                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 515                           | 513 |
| 20,000            | 3,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 540                           | 530 |
| 21,000            | 3,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 570                           | 548 |
| 22,000            | 3,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 595                           | 565 |
| 23,000            | 3,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 625                           | 583 |
| 24,000            | 3,600                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 650                           | 600 |
| 25,000            | 3,700                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0   |                               |                        |       |       |  |  |  |                                         | 0                                 | 675                           | 618 |

Figure 4.3d(2).

**MATERIEL Targets**  
**Small Free Rocket**

**DELTA/5 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                                        |                        |       |       |       |       |       |       |       | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |                                        |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|--------------------------------------------------|-----------------------------------|----------------------------------------|
|                   |                                                                                         | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                                        | TANKS AND ARTILLERY    |       |       |       |       |       |       |       |                                                  |                                   |                                        |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |       |                                                  |                                   | Prob min<br>R <sub>D</sub><br>(meters) |
|                   |                                                                                         | 200                                                                                                                                                                    | 300   | 400   | 500   | 600   | 700   | 800   | 900   |                                        | 150                    | 200   | 250   | 300   | 350   | 400   | 450   | 500   |                                                  |                                   |                                        |
| 3,000             | 2,100                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .9/.9                  | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 225                                              | 85                                | 0                                      |
| 4,000             | 2,100                                                                                   | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .8/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 225                                              | 110                               | 0                                      |
| 5,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .8/.9                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 225                                              | 135                               | 0                                      |
| 6,000             | 2,200                                                                                   | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .7/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 225                                              | 165                               | 0                                      |
| 7,000             | 2,200                                                                                   | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .6/.8                  | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 225                                              | 190                               | 0                                      |
| 8,000             | 2,200                                                                                   | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .5/.8                  | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 225                                              | 220                               | 0                                      |
| 9,000             | 2,200                                                                                   | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .4/.7                  | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 225                                              | 245                               | 0                                      |
| 10,000            | 2,300                                                                                   | .6/.9                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .3/.7                  | .3/.6 | .3/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | 225                                              | 270                               | 0                                      |
| 11,000            | 2,300                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .2/.6                  | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | 225                                              | 300                               | 0                                      |
| 12,000            | 2,300                                                                                   | .5/.8                                                                                                                                                                  | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .2/.6                  | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 225                                              | 325                               | 0                                      |
| 13,000            | 2,300                                                                                   | .4/.8                                                                                                                                                                  | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .1/.5                  | .1/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 225                                              | 355                               | 0                                      |
| 14,000            | 2,300                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .0/.5                  | .1/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                              | 380                               | 0                                      |
| 15,000            | 2,300                                                                                   | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .0/.5                  | .0/.4 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                              | 405                               | 0                                      |
| 16,000            | 2,400                                                                                   | .2/.7                                                                                                                                                                  | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .0/.4                  | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                              | 435                               | 0                                      |
| 17,000            | 2,400                                                                                   | .2/.6                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .0/.4                  | .0/.4 | .0/.3 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                              | 460                               | 0                                      |
| 18,000            | 2,400                                                                                   | .1/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .0/.4                  | .0/.3 | .0/.3 | .0/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225                                              | 490                               | 0                                      |
| 19,000            | 2,400                                                                                   | .1/.6                                                                                                                                                                  | .1/.5 | .2/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                    | .0/.3                  | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | 225                                              | 515                               | 0                                      |
| 20,000            | 2,400                                                                                   | .1/.5                                                                                                                                                                  | .1/.5 | .1/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                    | .0/.3                  | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .1/.2 | 225                                              | 540                               | 0                                      |
| 21,000            | 2,400                                                                                   | .0/.5                                                                                                                                                                  | .1/.5 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                    | .0/.3                  | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225                                              | 570                               | 0                                      |
| 22,000            | 2,500                                                                                   | .0/.5                                                                                                                                                                  | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                    | .0/.3                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225                                              | 595                               | 0                                      |
| 23,000            | 2,500                                                                                   | .0/.5                                                                                                                                                                  | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                    | .0/.3                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225                                              | 625                               | 0                                      |
| 24,000            | 2,500                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 325                                    | .0/.3                  | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225                                              | 650                               | 0                                      |
| 25,000            | 2,500                                                                                   | .0/.4                                                                                                                                                                  | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 325                                    | .0/.2                  | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225                                              | 675                               | 0                                      |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.3d(3).

SFR 1

**MATERIEL Targets**  
**Small Free Rocket**

**LOW Airburst**  
**Precludes fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                               |                        |       |       |       |       |       |       |       | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-----------------------------------------|-----------------------------------|-------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                               | TANKS AND ARTILLERY    |       |       |       |       |       |       |       |                                         |                                   |                               |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |       |       |       |       |       |       |                                         |                                   | Prob min<br>$R_D$<br>(meters) |
|                   |                                                                            | 600                                                                                                                                                                    | 700   | 800   | 900   | 1,000 | 1,100 | 1,200 | 1,300 |                               | 200                    | 300   | 400   | 500   | 600   | 700   | 800   | 900   |                                         |                                   |                               |
| 3,000             | 4,100                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.6 | .5/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | 650                           | .9/.9                  | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 375                                     | 85                                | 118                           |
| 4,000             | 4,100                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | 650                           | .9/.9                  | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 350                                     | 110                               | 135                           |
| 5,000             | 4,200                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | 625                           | .9/.9                  | .7/.9 | .4/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | 275                                     | 135                               | 153                           |
| 6,000             | 4,200                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 600                           | .7/.9                  | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 225                                     | 165                               | 170                           |
| 7,000             | 4,200                                                                      | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 575                           | .5/.8                  | .3/.7 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 |       | 175                                     | 190                               | 188                           |
| 8,000             | 4,200                                                                      | .7/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 550                           | .3/.7                  | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 150                                     | 220                               | 205                           |
| 9,000             | 4,200                                                                      | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | 525                           | .2/.6                  | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 100                                     | 245                               | 223                           |
| 10,000            | 4,200                                                                      | .6/.7                                                                                                                                                                  | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 500                           | .0/.6                  | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       |       | 50                                      | 270                               | 240                           |
| 11,000            | 4,300                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 450                           | .0/.5                  | .0/.4 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                                       | 300                               | 258                           |
| 12,000            | 4,300                                                                      | .3/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 275                           | .0/.5                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | 0                                       | 325                               | 275                           |
| 13,000            | 4,300                                                                      | .1/.6                                                                                                                                                                  | .1/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 200                           | .0/.4                  | .0/.3 | .0/.2 | .0/.1 |       |       |       |       | 0                                       | 355                               | 293                           |
| 14,000            | 4,300                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 125                           | .0/.3                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                       | 380                               | 310                           |
| 15,000            | 4,300                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 75                            | .0/.3                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                       | 405                               | 328                           |
| 16,000            | 4,300                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 0                             | .0/.3                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                       | 435                               | 345                           |
| 17,000            | 4,400                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 0                             | .0/.2                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                                       | 460                               | 363                           |
| 18,000            | 4,400                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 490                               | 380                           |
| 19,000            | 4,400                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 515                               | 398                           |
| 20,000            | 4,400                                                                      | .0/.3                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 540                               | 415                           |
| 21,000            | 4,400                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                             | .0/.2                  | .0/.1 |       |       |       |       |       |       | 0                                       | 570                               | 433                           |
| 22,000            | 4,500                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 595                               | 450                           |
| 23,000            | 4,500                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 625                               | 468                           |
| 24,000            | 4,500                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 650                               | 485                           |
| 25,000            | 4,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0                             | .0/.1                  |       |       |       |       |       |       |       | 0                                       | 675                               | 503                           |

Figure 4.3e(1).

**HIGH Airburst**  
**Reduces intensity of induced contamination. Precludes fallout.**

| Range<br>(meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |     |                               |                        |       |  |  |  |  |  | Offset<br>distance<br>$d_o$<br>(meters) | Height<br>of<br>burst<br>(meters) |                               |
|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-------------------------------|------------------------|-------|--|--|--|--|--|-----------------------------------------|-----------------------------------|-------------------------------|
|                   |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |     |                               | TANKS AND ARTILLERY    |       |  |  |  |  |  |                                         |                                   |                               |
|                   |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       |     | Prob min<br>$R_D$<br>(meters) | Target radius (meters) |       |  |  |  |  |  |                                         |                                   | Prob min<br>$R_D$<br>(meters) |
|                   |                                                                            | 400                                                                                                                                                                    | 500   | 600   | 700   | 800   | 900   | 1,000 | 1,100 | 200 |                               | 300                    | 400   |  |  |  |  |  |                                         |                                   |                               |
| 3,000             | 4,100                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | 525 | .2/.5                         | .1/.2                  | .0/.1 |  |  |  |  |  | 100                                     | 85                                | 280                           |
| 4,000             | 4,100                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | 500 | .0/.4                         | .0/.2                  | .0/.1 |  |  |  |  |  | 50                                      | 110                               | 297                           |
| 5,000             | 4,200                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 450 | .0/.3                         | .0/.1                  |       |  |  |  |  |  | 0                                       | 135                               | 315                           |
| 6,000             | 4,200                                                                      | .5/.8                                                                                                                                                                  | .3/.7 | .2/.6 | .1/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | 275 | .0/.2                         | .0/.1                  |       |  |  |  |  |  | 0                                       | 165                               | 332                           |
| 7,000             | 4,200                                                                      | .2/.7                                                                                                                                                                  | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 200 | .0/.1                         |                        |       |  |  |  |  |  | 0                                       | 190                               | 350                           |
| 8,000             | 4,200                                                                      | .1/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 125 | .0/.1                         |                        |       |  |  |  |  |  | 0                                       | 220                               | 367                           |
| 9,000             | 4,200                                                                      | .0/.5                                                                                                                                                                  | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       | 75  | .0/.1                         |                        |       |  |  |  |  |  | 0                                       | 245                               | 385                           |
| 10,000            | 4,200                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 0   | .0/.1                         |                        |       |  |  |  |  |  | 0                                       | 270                               | 402                           |
| 11,000            | 4,300                                                                      | .0/.3                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0   | .0/.1                         |                        |       |  |  |  |  |  | 0                                       | 300                               | 420                           |
| 12,000            | 4,300                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0   | .0/.1                         |                        |       |  |  |  |  |  | 0                                       | 325                               | 437                           |
| 13,000            | 4,300                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 355                               | 455                           |
| 14,000            | 4,300                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.1 |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 380                               | 472                           |
| 15,000            | 4,300                                                                      | .0/.2                                                                                                                                                                  | .0/.1 |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 405                               | 490                           |
| 16,000            | 4,300                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 435                               | 507                           |
| 17,000            | 4,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 460                               | 525                           |
| 18,000            | 4,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 490                               | 542                           |
| 19,000            | 4,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 515                               | 560                           |
| 20,000            | 4,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 540                               | 577                           |
| 21,000            | 4,400                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 570                               | 595                           |
| 22,000            | 4,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 595                               | 612                           |
| 23,000            | 4,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 625                               | 630                           |
| 24,000            | 4,500                                                                      | .0/.1                                                                                                                                                                  |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 650                               | 647                           |
| 25,000            | 4,500                                                                      |                                                                                                                                                                        |       |       |       |       |       |       |       | 0   |                               |                        |       |  |  |  |  |  | 0                                       | 675                               | 665                           |

Figure 4.3e(2).



**MATERIEL Targets**  
**Small Free Rocket**

**ECHO/10 KT**

**IMPACT Burst**  
**Produces fallout**

| Range<br>(meters) | Minimum<br>safe<br>distance <sup>1</sup><br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                                        |                        |       |       |       |       |       |       |       |                                        | Offset<br>distance<br>d <sub>o</sub><br>(meters) | Height<br>of<br>burst<br>(meters) |
|-------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------|--------------------------------------------------|-----------------------------------|
|                   |                                                                                         | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       |                                        | TANKS AND ARTILLERY    |       |       |       |       |       |       |       |                                        |                                                  |                                   |
|                   |                                                                                         | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) |                                                  |                                   |
|                   |                                                                                         | 400                                                                                                                                                                    | 500   | 600   | 700   | 800   | 900   | 1,000 | 1,100 |                                        | 100                    | 200   | 300   | 400   | 500   | 600   | 700   | 800   |                                        |                                                  |                                   |
| 3,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .9/.9                  | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 85                                               | 0                                 |
| 4,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .9/.9                  | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 110                                              | 0                                 |
| 5,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .9/.9                  | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 135                                              | 0                                 |
| 6,000             | 2,700                                                                                   | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .9/.9                  | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 165                                              | 0                                 |
| 7,000             | 2,700                                                                                   | .7/.8                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .9/.9                  | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 190                                              | 0                                 |
| 8,000             | 2,700                                                                                   | .7/.8                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .8/.9                  | .6/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 220                                              | 0                                 |
| 9,000             | 2,800                                                                                   | .7/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .7/.9                  | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 245                                              | 0                                 |
| 10,000            | 2,800                                                                                   | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .7/.9                  | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 270                                              | 0                                 |
| 11,000            | 2,800                                                                                   | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .6/.8                  | .4/.8 | .4/.6 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 300                                              | 0                                 |
| 12,000            | 2,800                                                                                   | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .5/.8                  | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 325                                              | 0                                 |
| 13,000            | 2,800                                                                                   | .5/.7                                                                                                                                                                  | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .4/.8                  | .3/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 355                                              | 0                                 |
| 14,000            | 2,900                                                                                   | .5/.7                                                                                                                                                                  | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .2/.7                  | .2/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 380                                              | 0                                 |
| 15,000            | 2,900                                                                                   | .5/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .2/.7                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 405                                              | 0                                 |
| 16,000            | 2,900                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .1/.6                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 435                                              | 0                                 |
| 17,000            | 2,900                                                                                   | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.6                  | .1/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300                                    | 460                                              | 0                                 |
| 18,000            | 2,900                                                                                   | .4/.6                                                                                                                                                                  | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.6                  | .1/.5 | .1/.5 | .1/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                    | 490                                              | 0                                 |
| 19,000            | 2,900                                                                                   | .3/.6                                                                                                                                                                  | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.5                  | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                    | 515                                              | 0                                 |
| 20,000            | 3,000                                                                                   | .3/.6                                                                                                                                                                  | .3/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.5                  | .0/.5 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                    | 540                                              | 0                                 |
| 21,000            | 3,000                                                                                   | .2/.6                                                                                                                                                                  | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.5                  | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                    | 570                                              | 0                                 |
| 22,000            | 3,000                                                                                   | .2/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.5                  | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                    | 595                                              | 0                                 |
| 23,000            | 3,000                                                                                   | .2/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.4                  | .0/.4 | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300                                    | 625                                              | 0                                 |
| 24,000            | 3,000                                                                                   | .2/.5                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.4                  | .0/.4 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 300                                    | 650                                              | 0                                 |
| 25,000            | 3,000                                                                                   | .2/.5                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450                                    | .0/.4                  | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.1 | 300                                    | 675                                              | 0                                 |

<sup>1</sup>Initial effects only. Fallout governs.

Figure 4.3e(3).

SFR 1

Troop Safety Distances—Meters  
Small Free Rocket

## LOW Airburst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 1,600                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 800           |
| 4,000             | 1,600                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 900           |
| 5,000             | 1,600                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 900           |
| 6,000             | 1,600                                                                         | 1,400       | 1,100         | 1,600                          | 1,400       | 1,100         | 1,400                            | 1,100       | 900           |
| 7,000             | 1,600                                                                         | 1,400       | 1,100         | 1,600                          | 1,400       | 1,100         | 1,400                            | 1,100       | 900           |
| 8,000             | 1,700                                                                         | 1,400       | 1,100         | 1,700                          | 1,400       | 1,100         | 1,400                            | 1,200       | 900           |
| 9,000             | 1,700                                                                         | 1,400       | 1,200         | 1,700                          | 1,400       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 10,000            | 1,700                                                                         | 1,400       | 1,200         | 1,700                          | 1,400       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 11,000            | 1,700                                                                         | 1,400       | 1,200         | 1,700                          | 1,400       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 12,000            | 1,700                                                                         | 1,500       | 1,200         | 1,700                          | 1,500       | 1,200         | 1,500                            | 1,200       | 1,000         |
| 13,000            | 1,700                                                                         | 1,500       | 1,200         | 1,700                          | 1,500       | 1,200         | 1,500                            | 1,200       | 1,000         |
| 14,000            | 1,800                                                                         | 1,500       | 1,200         | 1,800                          | 1,500       | 1,200         | 1,500                            | 1,300       | 1,000         |
| 15,000            | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,000         |
| 16,000            | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 17,000            | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 18,000            | 1,800                                                                         | 1,600       | 1,300         | 1,800                          | 1,600       | 1,300         | 1,600                            | 1,300       | 1,100         |
| 19,000            | 1,800                                                                         | 1,600       | 1,300         | 1,800                          | 1,600       | 1,300         | 1,600                            | 1,300       | 1,100         |
| 20,000            | 1,900                                                                         | 1,600       | 1,300         | 1,900                          | 1,600       | 1,300         | 1,600                            | 1,400       | 1,100         |
| 21,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,100         |
| 22,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 23,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 24,000            | 1,900                                                                         | 1,700       | 1,400         | 1,900                          | 1,700       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 25,000            | 1,900                                                                         | 1,700       | 1,400         | 1,900                          | 1,700       | 1,400         | 1,700                            | 1,400       | 1,200         |

Figure 4.4a(1).

## HIGH Airburst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 1,600                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 800           |
| 4,000             | 1,600                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 900           |
| 5,000             | 1,600                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 900           |
| 6,000             | 1,600                                                                         | 1,400       | 1,100         | 1,600                          | 1,400       | 1,100         | 1,300                            | 1,100       | 900           |
| 7,000             | 1,600                                                                         | 1,400       | 1,100         | 1,600                          | 1,400       | 1,100         | 1,400                            | 1,100       | 900           |
| 8,000             | 1,600                                                                         | 1,400       | 1,100         | 1,600                          | 1,400       | 1,100         | 1,400                            | 1,200       | 900           |
| 9,000             | 1,700                                                                         | 1,400       | 1,200         | 1,700                          | 1,400       | 1,200         | 1,400                            | 1,200       | 900           |
| 10,000            | 1,700                                                                         | 1,400       | 1,200         | 1,700                          | 1,400       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 11,000            | 1,700                                                                         | 1,400       | 1,200         | 1,700                          | 1,400       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 12,000            | 1,700                                                                         | 1,500       | 1,200         | 1,700                          | 1,500       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 13,000            | 1,700                                                                         | 1,500       | 1,200         | 1,700                          | 1,500       | 1,200         | 1,500                            | 1,200       | 1,000         |
| 14,000            | 1,700                                                                         | 1,500       | 1,200         | 1,700                          | 1,500       | 1,200         | 1,500                            | 1,300       | 1,000         |
| 15,000            | 1,800                                                                         | 1,500       | 1,200         | 1,800                          | 1,500       | 1,200         | 1,500                            | 1,300       | 1,000         |
| 16,000            | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,000         |
| 17,000            | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 18,000            | 1,800                                                                         | 1,600       | 1,300         | 1,800                          | 1,600       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 19,000            | 1,800                                                                         | 1,600       | 1,300         | 1,800                          | 1,600       | 1,300         | 1,600                            | 1,300       | 1,100         |
| 20,000            | 1,800                                                                         | 1,600       | 1,300         | 1,800                          | 1,600       | 1,300         | 1,600                            | 1,300       | 1,100         |
| 21,000            | 1,900                                                                         | 1,600       | 1,300         | 1,900                          | 1,600       | 1,300         | 1,600                            | 1,400       | 1,100         |
| 22,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,100         |
| 23,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 24,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 25,000            | 1,900                                                                         | 1,700       | 1,400         | 1,900                          | 1,700       | 1,400         | 1,700                            | 1,400       | 1,200         |

Figure 4.4a(2).

## IMPACT Burst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 1,600                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 900           |
| 4,000             | 1,300                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 900           |
| 5,000             | 1,600                                                                         | 1,300       | 1,100         | 1,600                          | 1,300       | 1,100         | 1,300                            | 1,100       | 900           |
| 6,000             | 1,600                                                                         | 1,400       | 1,100         | 1,600                          | 1,400       | 1,100         | 1,400                            | 1,100       | 900           |
| 7,000             | 1,600                                                                         | 1,400       | 1,100         | 1,600                          | 1,400       | 1,100         | 1,400                            | 1,200       | 900           |
| 8,000             | 1,700                                                                         | 1,400       | 1,100         | 1,700                          | 1,400       | 1,100         | 1,400                            | 1,200       | 900           |
| 9,000             | 1,700                                                                         | 1,400       | 1,200         | 1,700                          | 1,400       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 10,000            | 1,700                                                                         | 1,400       | 1,200         | 1,700                          | 1,400       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 11,000            | 1,700                                                                         | 1,500       | 1,200         | 1,700                          | 1,500       | 1,200         | 1,400                            | 1,200       | 1,000         |
| 12,000            | 1,700                                                                         | 1,500       | 1,200         | 1,700                          | 1,500       | 1,200         | 1,500                            | 1,200       | 1,000         |
| 13,000            | 1,700                                                                         | 1,500       | 1,200         | 1,700                          | 1,500       | 1,200         | 1,500                            | 1,300       | 1,000         |
| 14,000            | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,000         |
| 15,000            | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 16,000            | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 17,000            | 1,800                                                                         | 1,600       | 1,300         | 1,800                          | 1,600       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 18,000            | 1,800                                                                         | 1,600       | 1,300         | 1,800                          | 1,600       | 1,300         | 1,600                            | 1,300       | 1,100         |
| 19,000            | 1,800                                                                         | 1,600       | 1,300         | 1,800                          | 1,600       | 1,300         | 1,600                            | 1,400       | 1,100         |
| 20,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,100         |
| 21,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 22,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 23,000            | 1,900                                                                         | 1,700       | 1,400         | 1,900                          | 1,700       | 1,400         | 1,700                            | 1,400       | 1,200         |
| 24,000            | 1,900                                                                         | 1,700       | 1,400         | 1,900                          | 1,700       | 1,400         | 1,700                            | 1,400       | 1,200         |
| 25,000            | 2,000                                                                         | 1,700       | 1,400         | 2,000                          | 1,700       | 1,400         | 1,700                            | 1,500       | 1,200         |

NOTE: Initial effects only. Fallout governs.

Figure 4.4a(3).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 4.5 for special friendly troop orientations.

# Troop Safety Distances—Meters Small Free Rocket

BRavo/1 KT

## LOW Airburst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,400                            | 1,300       | 1,100         |
| 4,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 5,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 6,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 7,000             | 1,800                                                                         | 1,600       | 1,400         | 1,800                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 8,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 9,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,200         |
| 10,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 11,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 12,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 13,000            | 1,900                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 14,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 15,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 16,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 17,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 18,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 19,000            | 2,000                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 20,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 21,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 22,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |
| 23,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |
| 24,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |
| 25,000            | 2,100                                                                         | 1,900       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,700       | 1,400         |

Figure 4.4b(1).

## HIGH Airburst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,400                            | 1,300       | 1,000         |
| 4,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 5,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 6,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 7,000             | 1,800                                                                         | 1,600       | 1,400         | 1,800                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 8,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 9,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 10,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 11,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 12,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 13,000            | 1,900                                                                         | 1,700       | 1,400         | 1,900                          | 1,700       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 14,000            | 1,900                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 15,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 16,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 17,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 18,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 19,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 20,000            | 2,000                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 21,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 22,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 23,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |
| 24,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |
| 25,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |

Figure 4.4b(2).

## IMPACT Burst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,400                            | 1,300       | 1,100         |
| 4,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 5,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 6,000             | 1,800                                                                         | 1,500       | 1,300         | 1,800                          | 1,500       | 1,300         | 1,500                            | 1,300       | 1,100         |
| 7,000             | 1,800                                                                         | 1,600       | 1,400         | 1,800                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 8,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,400       | 1,100         |
| 9,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 10,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 11,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 12,000            | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,200         |
| 13,000            | 1,900                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 14,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,500       | 1,200         |
| 15,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 16,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 17,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,500       | 1,300         |
| 18,000            | 2,000                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 19,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 20,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,600       | 1,300         |
| 21,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |
| 22,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |
| 23,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,400         |
| 24,000            | 2,100                                                                         | 1,900       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,700       | 1,400         |
| 25,000            | 2,200                                                                         | 1,900       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,800                            | 1,700       | 1,400         |

NOTE: Initial effects only. Fallout governs.

Figure 4.4b(3).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 4.5 for special friendly troop orientations.

Troop Safety Distances—Meters  
Small Free Rocket

## LOW Airburst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,300       | 1,100         |
| 4,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 5,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 6,000             | 2,300                                                                         | 1,700       | 1,500         | 1,900                          | 1,600       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 7,000             | 2,300                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 8,000             | 2,400                                                                         | 1,800       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 9,000             | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,200         |
| 10,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 11,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 12,000            | 2,400                                                                         | 1,800       | 1,600         | 2,000                          | 1,700       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 13,000            | 2,400                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 14,000            | 2,500                                                                         | 1,900       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 15,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,300         |
| 16,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 17,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 18,000            | 2,500                                                                         | 1,900       | 1,700         | 2,100                          | 1,800       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 19,000            | 2,500                                                                         | 1,900       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 20,000            | 2,600                                                                         | 2,000       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 21,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,400         |
| 22,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,900                            | 1,600       | 1,400         |
| 23,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,900                            | 1,600       | 1,400         |
| 24,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 25,000            | 2,600                                                                         | 2,000       | 1,800         | 2,200                          | 2,000       | 1,800         | 1,900                            | 1,700       | 1,400         |

Figure 4.4c(1).

## HIGH Airburst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,300       | 1,000         |
| 4,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,300       | 1,100         |
| 5,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 6,000             | 2,300                                                                         | 1,700       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,400       | 1,100         |
| 7,000             | 2,300                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 8,000             | 2,400                                                                         | 1,800       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 9,000             | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 10,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,200         |
| 11,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 12,000            | 2,400                                                                         | 1,800       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 13,000            | 2,400                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 14,000            | 2,500                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 15,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 16,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,300         |
| 17,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 18,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 19,000            | 2,500                                                                         | 1,900       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 20,000            | 2,500                                                                         | 2,000       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 21,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 22,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 23,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,900                            | 1,600       | 1,400         |
| 24,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,900                            | 1,600       | 1,400         |
| 25,000            | 2,600                                                                         | 2,000       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,900                            | 1,600       | 1,400         |

Figure 4.4c(2).

## IMPACT Burst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,500                            | 1,300       | 1,100         |
| 4,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 5,000             | 1,900                                                                         | 1,600       | 1,400         | 1,900                          | 1,600       | 1,400         | 1,600                            | 1,300       | 1,100         |
| 6,000             | 1,900                                                                         | 1,600       | 1,500         | 1,900                          | 1,600       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 7,000             | 1,900                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 8,000             | 1,900                                                                         | 1,700       | 1,500         | 1,900                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,100         |
| 9,000             | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,600                            | 1,400       | 1,200         |
| 10,000            | 2,000                                                                         | 1,700       | 1,500         | 2,000                          | 1,700       | 1,500         | 1,700                            | 1,400       | 1,200         |
| 11,000            | 2,000                                                                         | 1,700       | 1,600         | 2,000                          | 1,700       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 12,000            | 2,000                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 13,000            | 2,000                                                                         | 1,800       | 1,600         | 2,000                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,200         |
| 14,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,700                            | 1,500       | 1,300         |
| 15,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 16,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 17,000            | 2,100                                                                         | 1,800       | 1,600         | 2,100                          | 1,800       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 18,000            | 2,100                                                                         | 1,900       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 19,000            | 2,100                                                                         | 1,900       | 1,700         | 2,100                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,300         |
| 20,000            | 2,200                                                                         | 1,900       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,800                            | 1,600       | 1,400         |
| 21,000            | 2,200                                                                         | 1,900       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,900                            | 1,600       | 1,400         |
| 22,000            | 2,200                                                                         | 1,900       | 1,700         | 2,200                          | 1,900       | 1,700         | 1,900                            | 1,600       | 1,400         |
| 23,000            | 2,200                                                                         | 1,900       | 1,800         | 2,200                          | 1,900       | 1,800         | 1,900                            | 1,700       | 1,400         |
| 24,000            | 2,200                                                                         | 2,000       | 1,800         | 2,200                          | 2,000       | 1,800         | 1,900                            | 1,700       | 1,400         |
| 25,000            | 2,200                                                                         | 2,000       | 1,800         | 2,200                          | 2,000       | 1,800         | 1,900                            | 1,700       | 1,400         |

NOTE: Initial effects only. Fallout governs.

Figure 4.4c(3).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 4.5 for special friendly troop orientations.

# Troop Safety Distances—Meters Small Free Rocket

DELTA/5 KT

## LOW Airburst

| Range<br><br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-----------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                       | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                       | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000                 | 3,300                                                                         | 2,500       | 2,100         | 2,100                          | 1,800       | 1,500         | 1,700                            | 1,500       | 1,200         |
| 4,000                 | 3,300                                                                         | 2,500       | 2,100         | 2,100                          | 1,800       | 1,500         | 1,700                            | 1,500       | 1,200         |
| 5,000                 | 3,300                                                                         | 2,500       | 2,100         | 2,200                          | 1,800       | 1,500         | 1,800                            | 1,500       | 1,200         |
| 6,000                 | 3,400                                                                         | 2,500       | 2,100         | 2,200                          | 1,900       | 1,500         | 1,800                            | 1,500       | 1,300         |
| 7,000                 | 3,400                                                                         | 2,500       | 2,200         | 2,200                          | 1,900       | 1,500         | 1,800                            | 1,500       | 1,300         |
| 8,000                 | 3,400                                                                         | 2,600       | 2,200         | 2,200                          | 1,900       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 9,000                 | 3,400                                                                         | 2,600       | 2,200         | 2,200                          | 1,900       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 10,000                | 3,400                                                                         | 2,600       | 2,200         | 2,200                          | 1,900       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 11,000                | 3,400                                                                         | 2,600       | 2,200         | 2,300                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 12,000                | 3,500                                                                         | 2,600       | 2,200         | 2,300                          | 2,000       | 1,600         | 1,900                            | 1,600       | 1,400         |
| 13,000                | 3,500                                                                         | 2,700       | 2,300         | 2,300                          | 2,000       | 1,600         | 1,900                            | 1,600       | 1,400         |
| 14,000                | 3,500                                                                         | 2,700       | 2,300         | 2,300                          | 2,000       | 1,700         | 1,900                            | 1,600       | 1,400         |
| 15,000                | 3,500                                                                         | 2,700       | 2,300         | 2,300                          | 2,000       | 1,700         | 2,000                            | 1,700       | 1,400         |
| 16,000                | 3,500                                                                         | 2,700       | 2,300         | 2,400                          | 2,000       | 1,700         | 2,000                            | 1,700       | 1,400         |
| 17,000                | 3,500                                                                         | 2,700       | 2,300         | 2,400                          | 2,000       | 1,700         | 2,100                            | 1,700       | 1,400         |
| 18,000                | 3,600                                                                         | 2,700       | 2,300         | 2,400                          | 2,100       | 1,700         | 2,100                            | 1,700       | 1,500         |
| 19,000                | 3,600                                                                         | 2,800       | 2,400         | 2,400                          | 2,100       | 1,700         | 2,100                            | 1,700       | 1,500         |
| 20,000                | 3,600                                                                         | 2,800       | 2,400         | 2,400                          | 2,100       | 1,800         | 2,200                            | 1,700       | 1,500         |
| 21,000                | 3,600                                                                         | 2,800       | 2,400         | 2,400                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 22,000                | 3,600                                                                         | 2,800       | 2,400         | 2,500                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 23,000                | 3,600                                                                         | 2,800       | 2,400         | 2,500                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 24,000                | 3,700                                                                         | 2,800       | 2,400         | 2,500                          | 2,200       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 25,000                | 3,700                                                                         | 2,900       | 2,500         | 2,500                          | 2,200       | 1,800         | 2,200                            | 1,800       | 1,600         |

Figure 4.4d(1).

## HIGH Airburst

| Range<br><br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-----------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                       | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                       | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000                 | 3,300                                                                         | 2,500       | 2,100         | 2,100                          | 1,800       | 1,500         | 1,700                            | 1,500       | 1,200         |
| 4,000                 | 3,300                                                                         | 2,500       | 2,100         | 2,100                          | 1,800       | 1,500         | 1,700                            | 1,500       | 1,200         |
| 5,000                 | 3,300                                                                         | 2,500       | 2,100         | 2,200                          | 1,800       | 1,500         | 1,700                            | 1,500       | 1,200         |
| 6,000                 | 3,300                                                                         | 2,500       | 2,100         | 2,200                          | 1,800       | 1,500         | 1,800                            | 1,500       | 1,200         |
| 7,000                 | 3,400                                                                         | 2,500       | 2,100         | 2,200                          | 1,900       | 1,500         | 1,800                            | 1,500       | 1,300         |
| 8,000                 | 3,400                                                                         | 2,600       | 2,200         | 2,200                          | 1,900       | 1,500         | 1,800                            | 1,500       | 1,300         |
| 9,000                 | 3,400                                                                         | 2,600       | 2,200         | 2,200                          | 1,900       | 1,600         | 1,800                            | 1,500       | 1,300         |
| 10,000                | 3,400                                                                         | 2,600       | 2,200         | 2,200                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 11,000                | 3,400                                                                         | 2,600       | 2,200         | 2,300                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 12,000                | 3,400                                                                         | 2,600       | 2,200         | 2,300                          | 1,900       | 1,600         | 2,000                            | 1,600       | 1,300         |
| 13,000                | 3,500                                                                         | 2,600       | 2,200         | 2,300                          | 2,000       | 1,600         | 2,000                            | 1,600       | 1,300         |
| 14,000                | 3,500                                                                         | 2,700       | 2,300         | 2,300                          | 2,000       | 1,600         | 2,000                            | 1,600       | 1,400         |
| 15,000                | 3,500                                                                         | 2,700       | 2,300         | 2,300                          | 2,000       | 1,600         | 2,100                            | 1,600       | 1,400         |
| 16,000                | 3,500                                                                         | 2,700       | 2,300         | 2,300                          | 2,000       | 1,700         | 2,100                            | 1,700       | 1,400         |
| 17,000                | 3,500                                                                         | 2,700       | 2,300         | 2,400                          | 2,000       | 1,700         | 2,100                            | 1,700       | 1,400         |
| 18,000                | 3,500                                                                         | 2,700       | 2,300         | 2,400                          | 2,000       | 1,700         | 2,100                            | 1,700       | 1,400         |
| 19,000                | 3,600                                                                         | 2,700       | 2,300         | 2,400                          | 2,000       | 1,700         | 2,100                            | 1,700       | 1,400         |
| 20,000                | 3,600                                                                         | 2,800       | 2,400         | 2,400                          | 2,100       | 1,700         | 2,200                            | 1,700       | 1,500         |
| 21,000                | 3,600                                                                         | 2,800       | 2,400         | 2,400                          | 2,100       | 1,700         | 2,200                            | 1,700       | 1,500         |
| 22,000                | 3,600                                                                         | 2,800       | 2,400         | 2,400                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 23,000                | 3,600                                                                         | 2,800       | 2,400         | 2,400                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 24,000                | 3,600                                                                         | 2,800       | 2,400         | 2,500                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 25,000                | 3,700                                                                         | 2,800       | 2,400         | 2,500                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |

Figure 4.4d(2).

## IMPACT Burst

| Range<br><br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-----------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                       | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                       | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000                 | 2,100                                                                         | 1,800       | 1,500         | 2,100                          | 1,800       | 1,500         | 1,700                            | 1,500       | 1,200         |
| 4,000                 | 2,100                                                                         | 1,800       | 1,500         | 2,100                          | 1,800       | 1,500         | 1,700                            | 1,500       | 1,200         |
| 5,000                 | 2,200                                                                         | 1,800       | 1,500         | 2,200                          | 1,800       | 1,500         | 1,800                            | 1,500       | 1,200         |
| 6,000                 | 2,200                                                                         | 1,900       | 1,500         | 2,200                          | 1,900       | 1,500         | 1,800                            | 1,500       | 1,300         |
| 7,000                 | 2,200                                                                         | 1,900       | 1,500         | 2,200                          | 1,900       | 1,500         | 1,800                            | 1,500       | 1,300         |
| 8,000                 | 2,200                                                                         | 1,900       | 1,600         | 2,200                          | 1,900       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 9,000                 | 2,200                                                                         | 1,900       | 1,600         | 2,200                          | 1,900       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 10,000                | 2,300                                                                         | 1,900       | 1,600         | 2,300                          | 1,900       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 11,000                | 2,300                                                                         | 1,900       | 1,600         | 2,300                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 12,000                | 2,300                                                                         | 2,000       | 1,600         | 2,300                          | 2,000       | 1,600         | 1,900                            | 1,600       | 1,400         |
| 13,000                | 2,300                                                                         | 2,000       | 1,600         | 2,300                          | 2,000       | 1,600         | 1,900                            | 1,600       | 1,400         |
| 14,000                | 2,300                                                                         | 2,000       | 1,700         | 2,300                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 15,000                | 2,300                                                                         | 2,000       | 1,700         | 2,300                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 16,000                | 2,400                                                                         | 2,000       | 1,700         | 2,400                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 17,000                | 2,400                                                                         | 2,000       | 1,700         | 2,400                          | 2,000       | 1,700         | 2,000                            | 1,700       | 1,500         |
| 18,000                | 2,400                                                                         | 2,100       | 1,700         | 2,400                          | 2,100       | 1,700         | 2,000                            | 1,700       | 1,500         |
| 19,000                | 2,400                                                                         | 2,100       | 1,800         | 2,400                          | 2,100       | 1,800         | 2,000                            | 1,700       | 1,500         |
| 20,000                | 2,400                                                                         | 2,100       | 1,800         | 2,400                          | 2,100       | 1,800         | 2,000                            | 1,800       | 1,500         |
| 21,000                | 2,400                                                                         | 2,100       | 1,800         | 2,400                          | 2,100       | 1,800         | 2,000                            | 1,800       | 1,500         |
| 22,000                | 2,500                                                                         | 2,100       | 1,800         | 2,500                          | 2,100       | 1,800         | 2,100                            | 1,800       | 1,500         |
| 23,000                | 2,500                                                                         | 2,200       | 1,800         | 2,500                          | 2,200       | 1,800         | 2,100                            | 1,800       | 1,600         |
| 24,000                | 2,500                                                                         | 2,200       | 1,800         | 2,500                          | 2,200       | 1,800         | 2,100                            | 1,800       | 1,600         |
| 25,000                | 2,500                                                                         | 2,200       | 1,900         | 2,500                          | 2,200       | 1,900         | 2,100                            | 1,900       | 1,600         |

NOTE: Initial effects only. Fallout governs.

Figure 4.4d(3).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 4.5 for special friendly troop orientations.

Troop Safety Distances—Meters  
Small Free Rocket

## LOW Airburst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 4,100                                                                         | 3,300       | 3,000         | 2,700                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 4,000             | 4,100                                                                         | 3,300       | 3,100         | 2,800                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 5,000             | 4,200                                                                         | 3,300       | 3,100         | 2,800                          | 2,000       | 1,700         | 1,900                            | 1,600       | 1,300         |
| 6,000             | 4,200                                                                         | 3,400       | 3,100         | 2,800                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 7,000             | 4,200                                                                         | 3,400       | 3,100         | 2,800                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 8,000             | 4,200                                                                         | 3,400       | 3,100         | 2,800                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 9,000             | 4,200                                                                         | 3,400       | 3,200         | 2,900                          | 2,000       | 1,700         | 2,000                            | 1,700       | 1,400         |
| 10,000            | 4,200                                                                         | 3,400       | 3,200         | 2,900                          | 2,000       | 1,700         | 2,000                            | 1,700       | 1,400         |
| 11,000            | 4,300                                                                         | 3,400       | 3,200         | 2,900                          | 2,100       | 1,800         | 2,000                            | 1,700       | 1,400         |
| 12,000            | 4,300                                                                         | 3,500       | 3,200         | 2,900                          | 2,100       | 1,800         | 2,100                            | 1,800       | 1,500         |
| 13,000            | 4,300                                                                         | 3,500       | 3,200         | 2,900                          | 2,100       | 1,800         | 2,100                            | 1,800       | 1,500         |
| 14,000            | 4,300                                                                         | 3,500       | 3,200         | 2,900                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 15,000            | 4,300                                                                         | 3,500       | 3,300         | 3,000                          | 2,100       | 1,800         | 2,200                            | 1,800       | 1,500         |
| 16,000            | 4,300                                                                         | 3,500       | 3,300         | 3,000                          | 2,100       | 1,800         | 2,300                            | 1,800       | 1,500         |
| 17,000            | 4,400                                                                         | 3,500       | 3,300         | 3,000                          | 2,200       | 1,900         | 2,300                            | 1,800       | 1,500         |
| 18,000            | 4,400                                                                         | 3,600       | 3,300         | 3,000                          | 2,200       | 1,900         | 2,400                            | 1,800       | 1,600         |
| 19,000            | 4,400                                                                         | 3,600       | 3,300         | 3,000                          | 2,200       | 1,900         | 2,500                            | 1,800       | 1,600         |
| 20,000            | 4,400                                                                         | 3,600       | 3,300         | 3,000                          | 2,200       | 1,900         | 2,500                            | 1,800       | 1,600         |
| 21,000            | 4,400                                                                         | 3,600       | 3,400         | 3,100                          | 2,200       | 1,900         | 2,600                            | 1,900       | 1,600         |
| 22,000            | 4,500                                                                         | 3,600       | 3,400         | 3,100                          | 2,200       | 1,900         | 2,600                            | 1,900       | 1,600         |
| 23,000            | 4,500                                                                         | 3,600       | 3,400         | 3,100                          | 2,300       | 2,000         | 2,600                            | 1,900       | 1,600         |
| 24,000            | 4,500                                                                         | 3,700       | 3,400         | 3,100                          | 2,300       | 2,000         | 2,700                            | 1,900       | 1,600         |
| 25,000            | 4,500                                                                         | 3,700       | 3,400         | 3,100                          | 2,300       | 2,000         | 2,700                            | 2,000       | 1,700         |

Figure 4.4e(1).

## HIGH Airburst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 4,100                                                                         | 3,300       | 3,000         | 2,700                          | 1,900       | 1,600         | 1,800                            | 1,600       | 1,300         |
| 4,000             | 4,100                                                                         | 3,300       | 3,100         | 2,800                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 5,000             | 4,200                                                                         | 3,300       | 3,100         | 2,800                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 6,000             | 4,200                                                                         | 3,300       | 3,100         | 2,800                          | 2,000       | 1,600         | 2,000                            | 1,600       | 1,300         |
| 7,000             | 4,200                                                                         | 3,400       | 3,100         | 2,800                          | 2,000       | 1,700         | 2,000                            | 1,600       | 1,300         |
| 8,000             | 4,200                                                                         | 3,400       | 3,100         | 2,800                          | 2,000       | 1,700         | 2,100                            | 1,600       | 1,400         |
| 9,000             | 4,200                                                                         | 3,400       | 3,100         | 2,800                          | 2,000       | 1,700         | 2,100                            | 1,600       | 1,400         |
| 10,000            | 4,200                                                                         | 3,400       | 3,200         | 2,900                          | 2,000       | 1,700         | 2,200                            | 1,600       | 1,400         |
| 11,000            | 4,300                                                                         | 3,400       | 3,200         | 2,900                          | 2,000       | 1,700         | 2,200                            | 1,500       | 1,400         |
| 12,000            | 4,300                                                                         | 3,400       | 3,200         | 2,900                          | 2,100       | 1,700         | 2,300                            | 1,600       | 1,400         |
| 13,000            | 4,300                                                                         | 3,500       | 3,200         | 2,900                          | 2,100       | 1,800         | 2,400                            | 1,700       | 1,400         |
| 14,000            | 4,300                                                                         | 3,500       | 3,200         | 2,900                          | 2,100       | 1,800         | 2,400                            | 1,700       | 1,500         |
| 15,000            | 4,300                                                                         | 3,500       | 3,200         | 2,900                          | 2,100       | 1,800         | 2,500                            | 1,800       | 1,500         |
| 16,000            | 4,300                                                                         | 3,500       | 3,300         | 3,000                          | 2,100       | 1,800         | 2,500                            | 1,800       | 1,500         |
| 17,000            | 4,400                                                                         | 3,500       | 3,300         | 3,000                          | 2,100       | 1,800         | 2,500                            | 1,800       | 1,500         |
| 18,000            | 4,400                                                                         | 3,500       | 3,300         | 3,000                          | 2,100       | 1,800         | 2,600                            | 1,800       | 1,500         |
| 19,000            | 4,400                                                                         | 3,600       | 3,300         | 3,000                          | 2,200       | 1,900         | 2,600                            | 1,900       | 1,500         |
| 20,000            | 4,400                                                                         | 3,600       | 3,300         | 3,000                          | 2,200       | 1,900         | 2,600                            | 1,900       | 1,500         |
| 21,000            | 4,400                                                                         | 3,600       | 3,300         | 3,000                          | 2,200       | 1,900         | 2,600                            | 1,900       | 1,600         |
| 22,000            | 4,400                                                                         | 3,600       | 3,400         | 3,100                          | 2,200       | 1,990         | 2,700                            | 1,900       | 1,600         |
| 23,000            | 4,500                                                                         | 3,600       | 3,400         | 3,100                          | 2,200       | 1,900         | 2,700                            | 1,900       | 1,600         |
| 24,000            | 4,500                                                                         | 3,600       | 3,400         | 3,100                          | 2,200       | 1,900         | 2,700                            | 1,900       | 1,600         |
| 25,000            | 4,500                                                                         | 3,700       | 3,400         | 3,100                          | 2,300       | 1,900         | 2,700                            | 2,000       | 1,600         |

Figure 4.4e(2).

## IMPACT Burst

| Range<br>(meters) | Minimum Distance Required for Troop<br>Vulnerability and Degree of Risk Shown |             |               |                                |             |               |                                  |             |               |
|-------------------|-------------------------------------------------------------------------------|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
|                   | Unwarned<br>Exposed<br>Personnel                                              |             |               | Warned<br>Exposed<br>Personnel |             |               | Warned<br>Protected<br>Personnel |             |               |
|                   | NEG<br>Risk                                                                   | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                    | MOD<br>Risk | EMERG<br>Risk | NEG<br>Risk                      | MOD<br>Risk | EMERG<br>Risk |
| 3,000             | 2,700                                                                         | 2,000       | 1,700         | 2,300                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 4,000             | 2,700                                                                         | 2,000       | 1,700         | 2,300                          | 1,900       | 1,600         | 1,900                            | 1,600       | 1,300         |
| 5,000             | 2,700                                                                         | 2,000       | 1,700         | 2,300                          | 1,900       | 1,700         | 1,900                            | 1,600       | 1,300         |
| 6,000             | 2,700                                                                         | 2,000       | 1,800         | 2,300                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 7,000             | 2,700                                                                         | 2,000       | 1,800         | 2,400                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 8,000             | 2,700                                                                         | 2,100       | 1,800         | 2,400                          | 2,000       | 1,700         | 1,900                            | 1,700       | 1,400         |
| 9,000             | 2,800                                                                         | 2,100       | 1,800         | 2,400                          | 2,000       | 1,700         | 2,000                            | 1,700       | 1,400         |
| 10,000            | 2,800                                                                         | 2,100       | 1,800         | 2,400                          | 2,000       | 1,700         | 2,000                            | 1,700       | 1,400         |
| 11,000            | 2,800                                                                         | 2,100       | 1,800         | 2,400                          | 2,100       | 1,800         | 2,000                            | 1,700       | 1,400         |
| 12,000            | 2,800                                                                         | 2,100       | 1,900         | 2,400                          | 2,100       | 1,800         | 2,000                            | 1,800       | 1,500         |
| 13,000            | 2,800                                                                         | 2,200       | 1,900         | 2,500                          | 2,100       | 1,800         | 2,000                            | 1,800       | 1,500         |
| 14,000            | 2,900                                                                         | 2,200       | 1,900         | 2,500                          | 2,100       | 1,800         | 2,000                            | 1,800       | 1,500         |
| 15,000            | 2,900                                                                         | 2,200       | 1,900         | 2,500                          | 2,100       | 1,800         | 2,100                            | 1,800       | 1,500         |
| 16,000            | 2,900                                                                         | 2,200       | 1,900         | 2,500                          | 2,100       | 1,800         | 2,100                            | 1,800       | 1,500         |
| 17,000            | 2,900                                                                         | 2,200       | 1,900         | 2,500                          | 2,200       | 1,900         | 2,100                            | 1,800       | 1,600         |
| 18,000            | 2,900                                                                         | 2,200       | 2,000         | 2,500                          | 2,200       | 1,900         | 2,100                            | 1,900       | 1,600         |
| 19,000            | 2,900                                                                         | 2,300       | 2,000         | 2,600                          | 2,200       | 1,900         | 2,100                            | 1,900       | 1,600         |
| 20,000            | 3,000                                                                         | 2,300       | 2,000         | 2,600                          | 2,200       | 1,900         | 2,200                            | 1,900       | 1,600         |
| 21,000            | 3,000                                                                         | 2,300       | 2,000         | 2,600                          | 2,200       | 1,900         | 2,200                            | 1,900       | 1,600         |
| 22,000            | 3,000                                                                         | 2,300       | 2,000         | 2,600                          | 2,300       | 2,000         | 2,200                            | 1,900       | 1,600         |
| 23,000            | 3,000                                                                         | 2,300       | 2,100         | 2,600                          | 2,300       | 2,000         | 2,200                            | 2,000       | 1,700         |
| 24,000            | 3,000                                                                         | 2,300       | 2,100         | 2,700                          | 2,300       | 2,000         | 2,200                            | 2,000       | 1,700         |
| 25,000            | 3,000                                                                         | 2,400       | 2,100         | 2,700                          | 2,300       | 2,000         | 2,200                            | 2,000       | 1,700         |

NOTE: Initial effects only. Fallout governs.

Figure 4.4e(3).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See fig 4.5 for special friendly troop orientations.

# SUPPLEMENTARY TROOP SAFETY Tables Small Free Rocket—All Yields

The troop safety distances in figures 4.4a(1) through 4.4e(3) are based on the friendly troop orientation shown in figure 1, below. The elliptical delivery pattern of the small free rocket may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5 below.

## Special Troop Safety Orientations

**LEGEND**  
 DGZ—Desired ground zero.  
 $R_s$ —Safety radius.  
 $d_b$ —Buffer distance.  
 ~~~~~—Friendly troops  
 →—Direction of fire

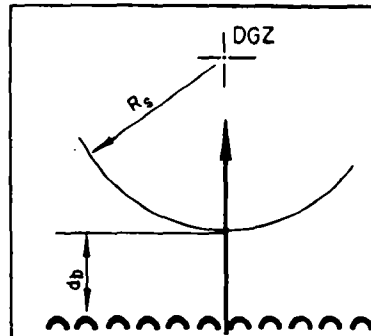


Figure 1. Straight line, perpendicular delivery.

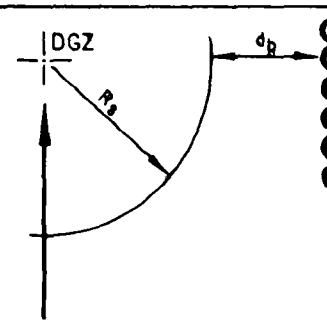


Figure 2. Straight line, parallel delivery.

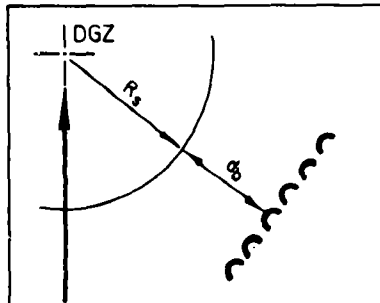


Figure 3. Straight-line, 45° delivery.

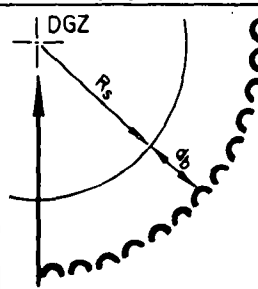


Figure 4. Quarter circle.

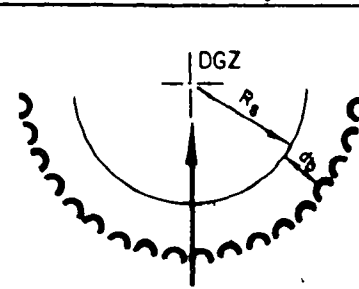


Figure 5. Half circle.

4.4.5

When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figures 4.4a(1) through 4.4e(3) must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options—All Yields | | | | | | | | | |
|--|---|--|------------------------------|---------------------------|-------------------|---|--|------------------------------|---------------------------|
| Range
(meters) | Straight-line
parallel delivery
(Fig 2) | Straight-line
45° delivery
(Fig 3) | Quarter
circle
(Fig 4) | Half
circle
(Fig 5) | Range
(meters) | Straight-line
parallel delivery
(Fig 2) | Straight-line
45° delivery
(Fig 3) | Quarter
circle
(Fig 4) | Half
circle
(Fig 5) |
| 3,000 | +100 | +100 | +100 | +100 | 20,000 | +300 | +200 | +400 | +400 |
| 4,000 | +100 | +100 | +100 | +100 | 21,000 | +400 | +200 | +400 | +400 |
| 5,000 | +100 | +100 | +100 | +100 | 22,000 | +400 | +300 | +400 | +500 |
| 6,000 | +200 | +100 | +200 | +200 | 23,000 | +400 | +300 | +500 | +500 |
| 7,000 | +200 | +100 | +200 | +200 | 24,000 | +400 | +300 | +500 | +500 |
| 8,000 | +200 | +100 | +200 | +200 | 25,000 | +400 | +300 | +500 | +500 |
| 9,000 | +200 | +100 | +200 | +200 | | | | | |
| 10,000 | +200 | +100 | +200 | +200 | | | | | |
| 11,000 | +200 | +200 | +200 | +300 | | | | | |
| 12,000 | +200 | +200 | +300 | +300 | | | | | |
| 13,000 | +200 | +200 | +300 | +300 | | | | | |
| 14,000 | +300 | +200 | +300 | +300 | | | | | |
| 15,000 | +300 | +200 | +300 | +300 | | | | | |
| 16,000 | +300 | +200 | +300 | +300 | | | | | |
| 17,000 | +300 | +200 | +400 | +400 | | | | | |
| 18,000 | +300 | +200 | +400 | +400 | | | | | |
| 19,000 | +300 | +200 | +400 | +400 | | | | | |

Figure 4.5.

CASUALTY and DAMAGE Tables
Small Free Rocket

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-----|-------------------|---------|---------------------|---------|------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|------|-----------------|-------|------|-------------------|-----|------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC | | Personnel in 1-m earth shelter | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 675 | | 0 | | | | | | | | | | 0 | 1,300 | 1,000 | 675 | 1,300 | 1,000 | 675 | 1,000 | 725 | 325 |
| 650 | | 125 | | | | | | | | | | 150 | 1,325 | 1,025 | 700 | 1,325 | 1,025 | 700 | 1,025 | 750 | 375 |
| 625 | | 225 | | | | | | | | | | 225 | 1,325 | 1,050 | 725 | 1,325 | 1,050 | 725 | 1,050 | 775 | 425 |
| 600 | | 275 | | | | | | | | | | 275 | 1,350 | 1,050 | 750 | 1,350 | 1,050 | 750 | 1,050 | 775 | 450 |
| 575 | | 325 | | | | | | | | | | 325 | 1,350 | 1,075 | 775 | 1,350 | 1,075 | 775 | 1,075 | 800 | 500 |
| 550 | | 375 | | | | | | | | | | 375 | 1,350 | 1,075 | 800 | 1,350 | 1,075 | 800 | 1,075 | 825 | 525 |
| 525 | | 400 | | | | | | | | | | 400 | 1,375 | 1,100 | 800 | 1,375 | 1,100 | 800 | 1,100 | 850 | 550 |
| 500 | | 425 | | 0 | | | | | | | | 450 | 1,375 | 1,100 | 825 | 1,375 | 1,100 | 825 | 1,100 | 850 | 575 |
| 475 | | 450 | | 150 | | | | | | | | 475 | 1,375 | 1,125 | 825 | 1,375 | 1,125 | 825 | 1,125 | 875 | 600 |
| 450 | | 475 | | 225 | 0 | | | | | | | 500 | 1,400 | 1,125 | 850 | 1,400 | 1,125 | 850 | 1,125 | 875 | 600 |
| 425 | 0 | 500 | | 275 | 150 | | | | | | | 500 | 1,400 | 1,125 | 850 | 1,400 | 1,125 | 850 | 1,125 | 900 | 625 |
| 400 | 150 | 525 | | 300 | 200 | | | 0 | 150 | 450 | 450 | 525 | 1,400 | 1,150 | 875 | 1,400 | 1,150 | 875 | 1,150 | 900 | 650 |
| 375 | 200 | 550 | | 325 | 250 | 525 | | 50 | 200 | 475 | 575 | 575 | 1,425 | 1,150 | 875 | 1,425 | 1,150 | 875 | 1,150 | 925 | 650 |
| 350 | 250 | 550 | | 350 | 275 | 525 | | 150 | 250 | 500 | 750 | 750 | 1,425 | 1,150 | 900 | 1,425 | 1,150 | 900 | 1,150 | 925 | 675 |
| 325 | 275 | 575 | | 375 | 300 | 550 | | 200 | 275 | 525 | 800 | 800 | 1,425 | 1,175 | 900 | 1,425 | 1,175 | 900 | 1,175 | 950 | 700 |
| 300 | 300 | 600 | 0 | 400 | 325 | 575 | | 225 | 300 | 525 | 800 | 800 | 1,425 | 1,175 | 900 | 1,425 | 1,175 | 900 | 1,175 | 950 | 700 |
| 275 | 325 | 600 | 125 | 425 | 350 | 575 | | 275 | 325 | 550 | 800 | 800 | 1,450 | 1,175 | 925 | 1,450 | 1,175 | 925 | 1,175 | 950 | 700 |
| 250 | 350 | 600 | 175 | 425 | 375 | 600 | 0 | 275 | 350 | 550 | 775 | 775 | 1,450 | 1,175 | 925 | 1,450 | 1,175 | 925 | 1,175 | 950 | 725 |
| 225 | 350 | 625 | 200 | 450 | 400 | 600 | 75 | 300 | 400 | 575 | 725 | 725 | 1,450 | 1,200 | 925 | 1,450 | 1,200 | 925 | 1,200 | 975 | 725 |
| 200 | 375 | 625 | 225 | 450 | 400 | 600 | 125 | 325 | 425 | 575 | 700 | 700 | 1,450 | 1,200 | 950 | 1,450 | 1,200 | 950 | 1,200 | 975 | 725 |
| 175 | 400 | 650 | 250 | 475 | 425 | 625 | 175 | 350 | 425 | 575 | 650 | 650 | 1,450 | 1,200 | 950 | 1,450 | 1,200 | 950 | 1,200 | 975 | 750 |
| 150 | 400 | 650 | 250 | 475 | 425 | 625 | 200 | 350 | 400 | 600 | 625 | 650 | 1,450 | 1,200 | 950 | 1,450 | 1,200 | 950 | 1,200 | 975 | 750 |
| 125 | 400 | 650 | 275 | 475 | 425 | 625 | 200 | 350 | 400 | 600 | 600 | 650 | 1,450 | 1,200 | 950 | 1,450 | 1,200 | 950 | 1,200 | 975 | 750 |
| 100 | 425 | 650 | 275 | 500 | 450 | 625 | 225 | 375 | 400 | 600 | 575 | 650 | 1,450 | 1,200 | 950 | 1,450 | 1,200 | 950 | 1,200 | 975 | 750 |
| 75 | 425 | 650 | 300 | 500 | 450 | 625 | 225 | 375 | 425 | 600 | 550 | 650 | 1,475 | 1,200 | 950 | 1,475 | 1,200 | 950 | 1,200 | 975 | 750 |
| 50 | 425 | 675 | 300 | 500 | 450 | 650 | 225 | 375 | 425 | 600 | 550 | 650 | 1,475 | 1,200 | 950 | 1,475 | 1,200 | 950 | 1,200 | 975 | 750 |
| 25 | 425 | 675 | 300 | 500 | 450 | 650 | 250 | 375 | 425 | 600 | 525 | 675 | 1,475 | 1,200 | 950 | 1,475 | 1,200 | 950 | 1,200 | 975 | 750 |
| 0 | 425 | 675 | 300 | 500 | 450 | 650 | 250 | 375 | 425 | 600 | 525 | 675 | 1,475 | 1,200 | 950 | 1,475 | 1,200 | 950 | 1,200 | 975 | 750 |

HOB_{ts} = 24 mLow HOB_{min} = 42 mHigh HOB_{min} = 96 mHOB₉₉ = HOB_{ts} + 3.5 PE_n mHOB₉₈ = HOB_{ts} + 3.0 PE_n mHOB₉₀ = HOB_{ts} + 1.9 PE_n m

Figure 4.6a.

CASUALTY and DAMAGE Tables
Small Free Rocket
All figures in meters

ALFA/.5 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | |
|-----|-------------------------------|----------------------------------|------------------------------|--|---|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|--|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
ltwg and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
Over-
pressure | Induced contamination | | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at G2 (Rad/hr) | | | | 2 rad/hr radius | | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV | |
| 675 | | | | | | | | | | 1,225 | | | 0-10 | | | | 0-550 | | |
| 650 | | | | | | | | | | 1,250 | | | 0-10 | | | | 0-550 | | |
| 625 | | | | | | | | | | 1,275 | | | 0-10 | | | | 0-600 | | |
| 600 | | | | | | | | | | 1,275 | | | 0-15 | | | | 0-600 | | |
| 575 | | | | | | | | | | 1,300 | | 0 | 0-15 | | | 0 | 0-650 | | |
| 550 | | | | | | | 0 | | | 1,325 | | 0-5 | 0-20 | | | 0-50 | 0-650 | | |
| 525 | | | | | | | 125 | | | 1,325 | | 0-5 | 0-25 | | | 0-100 | 0-650 | | |
| 500 | | | | | | | 200 | | | 1,325 | | 0-5 | 0-30 | | | 0-250 | 0-700 | | |
| 475 | | | | | | | 250 | | | 1,325 | | 0-5 | 0-45 | | | 0-300 | 0-750 | | |
| 450 | | | | | | | 300 | | | 1,350 | | 0-5 | 5-60 | | | 0-350 | 50-750 | | |
| 425 | | | | | | | 325 | | | 1,350 | | 0-10 | 5-75 | | | 0-350 | 150-750 | | |
| 400 | | | | | | | 375 | | | 1,350 | | 0-10 | 5-100 | | | 0-400 | 200-750 | | |
| 375 | | | | | | | 400 | | | 1,350 | 0 | 0-15 | 10-130 | | 0 | 0-450 | 250-800 | | |
| 350 | | | | | | | 400 | | | 1,350 | 0-5 | 0-15 | 10-160 | | 0-50 | 0-450 | 300-800 | | |
| 325 | | | | | | | 425 | 0 | | 1,350 | 0-5 | 0-20 | 10-200 | | 0-150 | 0-450 | 350-800 | | |
| 300 | | | | | | | 450 | 75 | | 1,325 | 0-5 | 0-20 | 10-240 | | 0-200 | 0-500 | 350-800 | | |
| 275 | | | | | | | 475 | 150 | | 1,325 | 0-5 | 0-25 | 15-290 | | 0-250 | 0-500 | 400-850 | | |
| 250 | | | | | | | 475 | 175 | | 1,300 | 0-5 | 0-30 | 15-330 | | 0-250 | 0-500 | 400-850 | | |
| 225 | | | | 0 | | | 500 | 225 | | 1,300 | 0-5 | 0-35 | 20-390 | | 0-300 | 0-550 | 400-850 | | |
| 200 | 0 | | | 50 | | | 500 | 225 | | 1,275 | 0-5 | 0-45 | 25-540 | | 0-300 | 0-550 | 450-850 | | |
| 175 | 25 | | | 100 | | | 500 | 250 | | 1,250 | 0-10 | 0-55 | 30-660 | | 0-350 | 0-550 | 450-850 | | |
| 150 | 75 | 0 | 0 | 125 | | 0 | 525 | 275 | 0 | 1,250 | 0-10 | 5-70 | 35-840 | | 0-350 | 50-550 | 450-850 | | |
| 125 | 150 | 25 | 50 | 150 | | 175 | 525 | 275 | 50 | 1,225 | 0-10 | 5-100 | 45-1,150 | | 0-350 | 100-550 | 450-850 | | |
| 100 | 175 | 50 | 75 | 175 | | 200 | 525 | 300 | 100 | 1,200 | 0-15 | 5-120 | 55-1,350 | | 0-350 | 150-550 | 450-850 | | |
| 75 | 200 | 75 | 100 | 175 | 0 | 200 | 525 | 300 | 100 | 1,150 | 0-20 | 10-145 | 70-1,750 | | 0-350 | 150-550 | 450-850 | | |
| 50 | 200 | 100 | 100 | 200 | 175 | 200 | 550 | 300 | 125 | 1,125 | 0-20 | 10-175 | 85-2,100 | | 0-350 | 150-550 | 450-850 | | |
| 25 | 200 | 125 | 100 | 200 | 150 | 175 | 450 | 250 | 125 | 1,100 | 0-25 | 10-250 | 120-2,900 | 0 | 0-350 | 150-550 | 450-850 | 0 | |
| 0 | 125 | 100 | 75 | 150 | 100 | 125 | 325 | 150 | 75 | 1,050 | FALLOUT GOVERNS | | | | | | | | |

SFR 1

Figure 4.6a continued.

¹Small Free Rocket.

CASUALTY and DAMAGE Tables

Small Free Rocket

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-----|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelter | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 825 | | | | | | | | | | | | | 1,450 | 1,125 | 850 | 1,450 | 1,125 | 850 | 1,075 | 850 | 475 |
| 800 | | 0 | | | | | | | | | | | 1,475 | 1,150 | 875 | 1,475 | 1,150 | 875 | 1,100 | 875 | 525 |
| 775 | | 125 | | | | | | | | | 0 | | 1,475 | 1,150 | 900 | 1,475 | 1,150 | 900 | 1,100 | 900 | 550 |
| 750 | | 225 | | | | 0 | | | | | 150 | | 1,500 | 1,175 | 925 | 1,500 | 1,175 | 925 | 1,125 | 925 | 600 |
| 725 | | 300 | | | | 125 | | | | 0 | 250 | | 1,500 | 1,200 | 950 | 1,500 | 1,200 | 950 | 1,150 | 950 | 625 |
| 700 | | 350 | | | | 225 | | | | 100 | 300 | | 1,525 | 1,200 | 950 | 1,525 | 1,200 | 950 | 1,150 | 950 | 650 |
| 675 | | 400 | | | | 300 | | | | 200 | 350 | | 1,525 | 1,225 | 975 | 1,525 | 1,225 | 975 | 1,175 | 975 | 675 |
| 650 | | 450 | | | | 350 | | | | 275 | 400 | | 1,550 | 1,225 | 1,000 | 1,550 | 1,225 | 1,000 | 1,200 | 1,000 | 700 |
| 625 | | 475 | | | | 400 | | | | 325 | 450 | | 1,550 | 1,250 | 1,000 | 1,550 | 1,250 | 1,000 | 1,200 | 1,000 | 725 |
| 600 | | 500 | | 0 | | 425 | | | | 375 | 475 | | 1,550 | 1,250 | 1,025 | 1,550 | 1,250 | 1,025 | 1,225 | 1,025 | 750 |
| 575 | 0 | 550 | | 125 | | 450 | | | | 400 | 0 | 500 | 1,575 | 1,275 | 1,050 | 1,575 | 1,275 | 1,050 | 1,225 | 1,050 | 775 |
| 550 | 125 | 550 | | 225 | 0 | 500 | | | | 450 | 325 | 525 | 1,575 | 1,275 | 1,050 | 1,575 | 1,275 | 1,050 | 1,250 | 1,050 | 800 |
| 525 | 200 | 575 | | 275 | 75 | 525 | | | 0 | 475 | 400 | 550 | 1,575 | 1,300 | 1,075 | 1,575 | 1,300 | 1,075 | 1,250 | 1,075 | 800 |
| 500 | 275 | 600 | | 300 | 175 | 550 | | | 75 | 500 | 475 | 575 | 1,600 | 1,300 | 1,075 | 1,600 | 1,300 | 1,075 | 1,250 | 1,075 | 825 |
| 475 | 300 | 625 | | 350 | 225 | 550 | | 0 | 175 | 525 | 550 | 600 | 1,600 | 1,300 | 1,100 | 1,600 | 1,300 | 1,100 | 1,275 | 1,100 | 825 |
| 450 | 350 | 650 | | 375 | 275 | 575 | | 50 | 225 | 550 | 600 | 625 | 1,600 | 1,325 | 1,100 | 1,600 | 1,325 | 1,100 | 1,275 | 1,100 | 850 |
| 425 | 375 | 650 | 0 | 400 | 325 | 600 | | 150 | 275 | 550 | 700 | 700 | 1,625 | 1,325 | 1,100 | 1,625 | 1,325 | 1,100 | 1,300 | 1,100 | 850 |
| 400 | 400 | 675 | 100 | 425 | 350 | 625 | | 225 | 300 | 575 | 950 | 950 | 1,625 | 1,325 | 1,125 | 1,625 | 1,325 | 1,125 | 1,300 | 1,125 | 875 |
| 375 | 425 | 700 | 175 | 450 | 375 | 625 | | 250 | 350 | 600 | 975 | 975 | 1,625 | 1,350 | 1,125 | 1,625 | 1,350 | 1,125 | 1,300 | 1,125 | 875 |
| 350 | 450 | 700 | 225 | 475 | 400 | 650 | | 300 | 375 | 600 | 1,000 | 1,000 | 1,625 | 1,350 | 1,125 | 1,625 | 1,350 | 1,125 | 1,300 | 1,125 | 900 |
| 325 | 475 | 725 | 250 | 500 | 425 | 650 | | 325 | 400 | 625 | 1,000 | 1,000 | 1,650 | 1,350 | 1,150 | 1,650 | 1,350 | 1,150 | 1,325 | 1,150 | 900 |
| 300 | 475 | 725 | 275 | 500 | 425 | 675 | 0 | 350 | 550 | 625 | 975 | 975 | 1,650 | 1,350 | 1,150 | 1,650 | 1,350 | 1,150 | 1,325 | 1,150 | 900 |
| 275 | 500 | 725 | 300 | 525 | 450 | 675 | 125 | 375 | 575 | 650 | 950 | 950 | 1,650 | 1,375 | 1,150 | 1,650 | 1,375 | 1,150 | 1,325 | 1,150 | 925 |
| 250 | 500 | 750 | 325 | 525 | 475 | 700 | 175 | 375 | 575 | 650 | 925 | 925 | 1,650 | 1,375 | 1,150 | 1,650 | 1,375 | 1,150 | 1,325 | 1,150 | 925 |
| 225 | 525 | 750 | 350 | 550 | 475 | 700 | 200 | 400 | 575 | 675 | 875 | 875 | 1,650 | 1,375 | 1,175 | 1,660 | 1,375 | 1,175 | 1,350 | 1,175 | 925 |
| 200 | 525 | 750 | 350 | 550 | 500 | 700 | 225 | 400 | 575 | 675 | 850 | 850 | 1,650 | 1,375 | 1,175 | 1,650 | 1,375 | 1,175 | 1,350 | 1,175 | 950 |
| 175 | 550 | 775 | 375 | 575 | 500 | 725 | 250 | 425 | 525 | 675 | 800 | 800 | 1,650 | 1,375 | 1,175 | 1,650 | 1,375 | 1,175 | 1,350 | 1,175 | 950 |
| 150 | 550 | 775 | 375 | 575 | 500 | 725 | 250 | 425 | 500 | 700 | 775 | 775 | 1,650 | 1,375 | 1,175 | 1,650 | 1,375 | 1,175 | 1,350 | 1,175 | 950 |
| 125 | 550 | 775 | 400 | 575 | 525 | 725 | 275 | 450 | 500 | 700 | 750 | 750 | 1,675 | 1,375 | 1,175 | 1,675 | 1,375 | 1,175 | 1,350 | 1,175 | 950 |
| 100 | 550 | 775 | 400 | 575 | 525 | 725 | 275 | 450 | 500 | 700 | 725 | 750 | 1,675 | 1,400 | 1,175 | 1,675 | 1,400 | 1,175 | 1,350 | 1,175 | 950 |
| 75 | 550 | 775 | 400 | 575 | 525 | 725 | 300 | 450 | 500 | 700 | 700 | 750 | 1,675 | 1,400 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,175 | 950 |
| 50 | 550 | 775 | 400 | 600 | 525 | 725 | 300 | 450 | 500 | 700 | 675 | 775 | 1,675 | 1,400 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,200 | 950 |
| 25 | 550 | 775 | 400 | 600 | 525 | 725 | 300 | 450 | 500 | 700 | 650 | 775 | 1,675 | 1,400 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,200 | 950 |
| 0 | 550 | 775 | 400 | 600 | 525 | 725 | 300 | 450 | 500 | 700 | 650 | 775 | 1,675 | 1,400 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,200 | 950 |

HOB₁₈ = 30 mLow HOB_{min} = 53 mHigh HOB_{min} = 120 mHOB₉₉ = HOB₁₈ + 3.5 PE_h mHOB₉₈ = HOB₁₈ + 3.0 PE_h mHOB₉₀ = HOB₁₈ + 1.9 PE_h m

Figure 4.6b.

CASUALTY and DAMAGE Tables **Small Free Rocket**

BRAVO/1 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | |
|-----|-------------------------------|----------------------------------|------------------------------|--|--|----------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|--|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
bridge | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III, | Type
IV | Type
I | Type
II | Type
III | Type
IV | |
| 825 | | | | | | | | | | 1,550 | | | 0-5 | | | | 0-500 | | |
| 800 | | | | | | | | | | 1,575 | | | 0-5 | | | | 0-550 | | |
| 775 | | | | | | | | | | 1,600 | | | 0-10 | | | | 0-550 | | |
| 750 | | | | | | | 0 | | | 1,625 | | | 0-10 | | | | 0-600 | | |
| 725 | | | | | | | 200 | | | 1,650 | | | 0-10 | | | | 0-650 | | |
| 700 | | | | | | | 275 | | | 1,650 | | | 0-10 | | | | 0-650 | | |
| 675 | | | | | | | 325 | | | 1,675 | | | 0-15 | | | | 0-700 | | |
| 650 | | | | | | | 375 | | | 1,675 | | | 0-20 | | | | 0-700 | | |
| 625 | | | | | | | 425 | | | 1,675 | | 0 | 0-20 | | | 0 | 0-750 | | |
| 600 | | | | | | | 450 | | | 1,675 | | 0-5 | 0-25 | | | 0-50 | 0-750 | | |
| 575 | | | | | | | 475 | | | 1,700 | | 0-5 | 0-30 | | | 0-200 | 0-800 | | |
| 550 | | | | | | | 500 | | | 1,700 | | 0-5 | 0-40 | | | 0-250 | 0-800 | | |
| 525 | | | | | | | 525 | | | 1,700 | | 0-5 | 0-50 | | | 0-300 | 0-800 | | |
| 500 | | | | | | | 550 | | | 1,700 | | 0-5 | 0-60 | | | 0-350 | 0-800 | | |
| 475 | | | | | | | 575 | | | 1,700 | | 0-10 | 0-90 | | | 0-400 | 0-850 | | |
| 450 | | | | | | | 600 | | | 1,700 | | 0-10 | 5-120 | | | 0-400 | 50-850 | | |
| 425 | | | | | | | 625 | | | 1,700 | 0 | 0-15 | 10-150 | | 0 | 0-450 | 150-900 | | |
| 400 | | | | | | | 625 | | | 1,700 | 0-5 | 0-20 | 10-200 | | 0-50 | 0-450 | 200-900 | | |
| 375 | | | | | | | 650 | | | 1,675 | 0-5 | 0-25 | 15-260 | | 0-150 | 0-500 | 250-900 | | |
| 350 | | | | | | | 675 | 0 | | 1,675 | 0-5 | 0-30 | 15-320 | | 0-200 | 0-500 | 300-900 | | |
| 325 | | | | | | | 675 | 125 | | 1,650 | 0-5 | 0-35 | 20-400 | | 0-250 | 0-500 | 350-900 | | |
| 300 | | | | 0 | | | 675 | 175 | | 1,650 | 0-5 | 5-40 | 20-480 | | 0-300 | 50-550 | 350-950 | | |
| 275 | | | | 25 | | | 700 | 200 | | 1,625 | 0-10 | 5-50 | 25-580 | | 0-300 | 150-550 | 400-950 | | |
| 250 | | | | 75 | | | 700 | 250 | | 1,600 | 0-10 | 5-55 | 30-660 | | 0-350 | 200-550 | 400-950 | | |
| 225 | 0 | | | 125 | | | 725 | 250 | | 1,600 | 0-10 | 5-65 | 35-780 | | 0-350 | 200-600 | 400-950 | | |
| 200 | 50 | | 0 | 150 | | 0 | 725 | 275 | 0 | 1,575 | 0-10 | 5-90 | 50-1,080 | | 0-350 | 250-600 | 450-950 | | |
| 175 | 150 | 0 | 25 | 175 | | 250 | 725 | 300 | 50 | 1,550 | 0-15 | 5-110 | 60-1,320 | | 0-400 | 250-600 | 450-950 | | |
| 150 | 200 | 25 | 75 | 200 | | 250 | 725 | 300 | 100 | 1,525 | 0-15 | 10-140 | 70-1,680 | | 0-400 | 300-600 | 450-950 | | |
| 125 | 225 | 50 | 100 | 225 | | 250 | 750 | 325 | 125 | 1,500 | 0-20 | 10-185 | 90-2,220 | | 0-400 | 300-600 | 450-950 | | |
| 100 | 250 | 100 | 125 | 225 | 0 | 275 | 750 | 325 | 150 | 1,475 | 0-25 | 10-225 | 110-2,700 | | 0-400 | 300-600 | 450-950 | | |
| 75 | 250 | 150 | 125 | 250 | 225 | 275 | 750 | 325 | 175 | 1,450 | 0-35 | 15-290 | 140-3,500 | | 0-400 | 300-600 | 450-950 | | |
| 50 | 250 | 150 | 150 | 250 | 250 | 275 | 725 | 325 | 175 | 1,400 | 5-40 | 15-350 | 170-4,200 | 0 | 50-400 | 300-600 | 450-950 | 0 | |
| 25 | 250 | 150 | 150 | 250 | 225 | 250 | 575 | 350 | 150 | 1,375 | FALLOUT GOVERNS | | | | | | | | |
| 0 | 175 | 125 | 100 | 200 | 150 | 200 | 450 | 250 | 125 | 1,325 | | | | | | | | | |

SFR 1

Figure 4.6b continued.

¹Small Free Rocket.

CASUALTY and DAMAGE Tables
Small Free Rocket

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-----|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 900 | | 0 | | | | | | | | | | | 1,975 | 1,300 | 950 | 1,525 | 1,200 | 950 | 1,125 | 800 | 325 |
| 875 | | 175 | | | | | | | | | | 0 | 1,975 | 1,300 | 950 | 1,525 | 1,200 | 950 | 1,150 | 825 | 400 |
| 850 | | 275 | | | | | | | | | | 175 | 2,000 | 1,325 | 975 | 1,550 | 1,225 | 975 | 1,150 | 850 | 450 |
| 825 | | 350 | | | | | | | | | 0 | 275 | 2,000 | 1,350 | 1,000 | 1,550 | 1,250 | 1,000 | 1,175 | 875 | 500 |
| 800 | | 400 | | | | | | | | | 100 | 350 | 2,025 | 1,350 | 1,025 | 1,575 | 1,275 | 1,025 | 1,200 | 900 | 525 |
| 775 | | 450 | | | | | | | | | 225 | 400 | 2,025 | 1,375 | 1,050 | 1,575 | 1,275 | 1,050 | 1,225 | 925 | 575 |
| 750 | | 475 | | | | | | | | | 300 | 450 | 2,025 | 1,400 | 1,075 | 1,600 | 1,300 | 1,075 | 1,225 | 950 | 600 |
| 725 | | 525 | | | | | | | | | 350 | 475 | 2,050 | 1,400 | 1,075 | 1,600 | 1,300 | 1,075 | 1,250 | 975 | 625 |
| 700 | | 550 | | 0 | | | | | | | 400 | 525 | 2,050 | 1,400 | 1,100 | 1,625 | 1,325 | 1,100 | 1,250 | 1,000 | 650 |
| 675 | | 575 | | 125 | | | | | | | 450 | 0 | 2,050 | 1,425 | 1,100 | 1,625 | 1,325 | 1,100 | 1,275 | 1,000 | 675 |
| 650 | | 600 | | 225 | | | | | | | 475 | 300 | 2,075 | 1,425 | 1,125 | 1,650 | 1,350 | 1,125 | 1,275 | 1,025 | 700 |
| 625 | 0 | 625 | | 275 | 0 | | | | | | 500 | 375 | 2,075 | 1,450 | 1,150 | 1,650 | 1,350 | 1,150 | 1,300 | 1,050 | 725 |
| 600 | 150 | 650 | | 325 | 150 | 600 | | | | 0 | 525 | 450 | 2,075 | 1,450 | 1,150 | 1,650 | 1,375 | 1,150 | 1,300 | 1,050 | 750 |
| 575 | 250 | 675 | | 375 | 225 | 625 | | | | 150 | 550 | 525 | 2,100 | 1,475 | 1,175 | 1,675 | 1,375 | 1,175 | 1,325 | 1,075 | 775 |
| 550 | 300 | 700 | | 400 | 275 | 625 | | | 0 | 225 | 575 | 600 | 2,100 | 1,475 | 1,175 | 1,675 | 1,400 | 1,175 | 1,325 | 1,075 | 800 |
| 525 | 325 | 725 | | 450 | 325 | 650 | | | 100 | 275 | 600 | 750 | 2,100 | 1,500 | 1,200 | 1,675 | 1,400 | 1,200 | 1,350 | 1,100 | 800 |
| 500 | 375 | 725 | | 475 | 375 | 675 | | | 200 | 325 | 625 | 900 | 2,100 | 1,500 | 1,200 | 1,700 | 1,400 | 1,200 | 1,350 | 1,100 | 825 |
| 475 | 400 | 750 | | 500 | 400 | 700 | | | 250 | 350 | 650 | 1,075 | 2,125 | 1,500 | 1,200 | 1,700 | 1,425 | 1,200 | 1,350 | 1,125 | 825 |
| 450 | 425 | 775 | 125 | 525 | 425 | 700 | | | 275 | 400 | 675 | 1,175 | 2,125 | 1,500 | 1,225 | 1,700 | 1,425 | 1,225 | 1,375 | 1,125 | 850 |
| 425 | 450 | 775 | 200 | 550 | 450 | 725 | | | 325 | 425 | 675 | 1,175 | 2,125 | 1,525 | 1,225 | 1,700 | 1,425 | 1,225 | 1,375 | 1,125 | 850 |
| 400 | 475 | 800 | 250 | 550 | 475 | 750 | | | 350 | 450 | 700 | 1,200 | 2,125 | 1,525 | 1,250 | 1,725 | 1,450 | 1,250 | 1,375 | 1,150 | 875 |
| 375 | 500 | 800 | 275 | 575 | 500 | 750 | 0 | 375 | 625 | 700 | 1,200 | 1,200 | 2,150 | 1,525 | 1,250 | 1,725 | 1,450 | 1,250 | 1,400 | 1,150 | 875 |
| 350 | 525 | 825 | 300 | 600 | 500 | 775 | 100 | 400 | 675 | 725 | 1,175 | 1,175 | 2,150 | 1,525 | 1,250 | 1,725 | 1,450 | 1,250 | 1,400 | 1,150 | 900 |
| 325 | 525 | 825 | 325 | 600 | 525 | 775 | 175 | 425 | 675 | 725 | 1,175 | 1,175 | 2,150 | 1,550 | 1,250 | 1,725 | 1,450 | 1,250 | 1,400 | 1,175 | 900 |
| 300 | 550 | 825 | 350 | 625 | 550 | 775 | 200 | 450 | 675 | 750 | 1,125 | 1,125 | 2,150 | 1,550 | 1,275 | 1,725 | 1,475 | 1,275 | 1,400 | 1,175 | 900 |
| 275 | 550 | 850 | 375 | 625 | 550 | 800 | 250 | 450 | 675 | 750 | 1,100 | 1,100 | 2,150 | 1,550 | 1,275 | 1,750 | 1,475 | 1,275 | 1,425 | 1,175 | 925 |
| 250 | 575 | 850 | 400 | 625 | 575 | 800 | 275 | 475 | 650 | 750 | 1,050 | 1,050 | 2,150 | 1,550 | 1,275 | 1,750 | 1,475 | 1,275 | 1,425 | 1,175 | 925 |
| 225 | 575 | 850 | 400 | 650 | 575 | 800 | 300 | 475 | 650 | 775 | 1,025 | 1,025 | 2,150 | 1,550 | 1,275 | 1,750 | 1,475 | 1,275 | 1,425 | 1,200 | 925 |
| 200 | 575 | 875 | 425 | 650 | 600 | 825 | 300 | 500 | 625 | 775 | 975 | 975 | 2,150 | 1,550 | 1,275 | 1,750 | 1,475 | 1,275 | 1,425 | 1,200 | 950 |
| 175 | 600 | 875 | 425 | 675 | 600 | 825 | 325 | 500 | 600 | 775 | 950 | 950 | 2,175 | 1,575 | 1,300 | 1,750 | 1,475 | 1,300 | 1,425 | 1,200 | 950 |
| 150 | 600 | 875 | 450 | 675 | 600 | 825 | 325 | 525 | 575 | 800 | 925 | 925 | 2,175 | 1,575 | 1,300 | 1,750 | 1,500 | 1,300 | 1,425 | 1,200 | 950 |
| 125 | 600 | 875 | 450 | 675 | 600 | 825 | 350 | 525 | 575 | 800 | 900 | 900 | 2,175 | 1,575 | 1,300 | 1,750 | 1,500 | 1,300 | 1,425 | 1,200 | 950 |
| 100 | 600 | 875 | 450 | 675 | 625 | 825 | 350 | 525 | 575 | 800 | 850 | 850 | 2,175 | 1,575 | 1,300 | 1,750 | 1,500 | 1,300 | 1,425 | 1,200 | 950 |
| 75 | 625 | 875 | 450 | 675 | 625 | 850 | 350 | 525 | 600 | 800 | 825 | 875 | 2,175 | 1,575 | 1,300 | 1,750 | 1,500 | 1,300 | 1,450 | 1,200 | 950 |
| 50 | 625 | 900 | 450 | 675 | 625 | 850 | 350 | 525 | 600 | 800 | 800 | 875 | 2,025 | 1,550 | 1,300 | 1,750 | 1,500 | 1,300 | 1,450 | 1,200 | 950 |
| 25 | 625 | 900 | 475 | 675 | 625 | 850 | 375 | 525 | 600 | 800 | 775 | 875 | 1,900 | 1,525 | 1,300 | 1,750 | 1,500 | 1,300 | 1,450 | 1,200 | 950 |
| 0 | 625 | 900 | 475 | 675 | 625 | 850 | 375 | 525 | 600 | 800 | 775 | 875 | 1,750 | 1,500 | 1,300 | 1,750 | 1,500 | 1,300 | 1,450 | 1,200 | 950 |

HOB₁₈ = 38 m

Low HOB_{min} = 67 m

High HOB_{min} = 152 m

HOB₉₉ = HOB₁₈ + 3.5 PE_h m

HOB₉₈ = HOB₁₈ + 3.0 PE_h m

HOB₉₀ = HOB₁₈ + 1.9 PE_h m

Figure 4.6c.

CASUALTY and DAMAGE Tables

Small Free Rocket

CHARLIE/2 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | | |
|-----|-----------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|-----------------|--|
| HOB | Mod
dam
wheeled
vehicles | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV | | |
| 900 | | | | | | | 550 | | | 2,075 | | | 0-5 | | | | 0-500 | | | |
| 875 | | | | | | | 575 | | | 2,100 | | | 0-10 | | | | 0-600 | | | |
| 850 | | | | | | | 625 | | | 2,100 | | | 0-10 | | | | 0-650 | | | |
| 825 | | | | | | | 650 | | | 2,100 | | | 0-10 | | | | 0-700 | | | |
| 800 | | | | | | | 675 | | | 2,100 | | | 0-10 | | | | 0-700 | | | |
| 775 | | | | | | | 700 | | | 2,125 | | | 0-15 | | | | 0-750 | | | |
| 750 | | | | | | | 725 | | | 2,125 | | | 0-15 | | | | 0-750 | | | |
| 725 | | | | | | | 750 | | | 2,125 | | 0 | 0-20 | | | 0 | 0-800 | | | |
| 700 | | | | | | | 775 | | | 2,125 | | 0-5 | 0-20 | | | 0-50 | 0-800 | | | |
| 675 | | | | | | | 800 | | | 2,150 | | 0-5 | 0-25 | | | 0-200 | 0-850 | | | |
| 650 | | | | | | | 825 | | | 2,150 | | 0-5 | 0-35 | | | 0-300 | 0-850 | | | |
| 625 | | | | | | | 850 | | | 2,150 | | 0-5 | 0-40 | | | 0-350 | 0-850 | | | |
| 600 | | | | | | | 850 | | | 2,150 | | 0-5 | 5-50 | | | 0-400 | 50-900 | | | |
| 575 | | | | | | | 875 | | | 2,150 | | 0-5 | 5-60 | | | 0-400 | 200-900 | | | |
| 550 | | | | | | | 900 | | | 2,150 | | 0-10 | 5-75 | | | 0-450 | 250-900 | | | |
| 525 | | | | | | | 900 | | | 2,125 | 0 | 0-10 | 5-100 | | 0 | 0-450 | 300-950 | | | |
| 500 | | | | | | | 925 | | | 2,125 | 0-5 | 0-10 | 5-120 | | 0-50 | 0-500 | 350-950 | | | |
| 475 | | | | | | | 925 | 0 | | 2,125 | 0-5 | 0-15 | 10-180 | | 0-150 | 0-550 | 400-950 | | | |
| 450 | | | | | | | 950 | 150 | | 2,100 | 0-5 | 0-20 | 10-230 | | 0-250 | 0-550 | 400-1,000 | | | |
| 425 | | | | | | | 950 | 200 | | 2,100 | 0-5 | 0-25 | 15-300 | | 0-300 | 0-600 | 450-1,000 | | | |
| 400 | | | | | | | 975 | 250 | | 2,075 | 0-5 | 0-35 | 20-400 | | 0-300 | 0-600 | 450-1,000 | | | |
| 375 | | | | 0 | | | 975 | 300 | | 2,075 | 0-5 | 0-50 | 20-520 | | 0-350 | 0-600 | 500-1,000 | | | |
| 350 | | | | 25 | | | 1,000 | 325 | | 2,050 | 0-10 | 5-60 | 25-640 | | 0-400 | 50-650 | 500-1,000 | | | |
| 325 | | | | 75 | | | 1,000 | 350 | | 2,025 | 0-10 | 5-70 | 35-800 | | 0-400 | 150-650 | 500-1,000 | | | |
| 300 | 0 | | | 125 | | | 1,000 | 375 | | 2,025 | 0-10 | 5-80 | 40-940 | | 0-400 | 200-650 | 550-1,050 | | | |
| 275 | 25 | | | 175 | | 0 | 1,025 | 375 | 0 | 2,000 | 0-15 | 5-100 | 50-1,140 | | 0-450 | 250-650 | 550-1,050 | | | |
| 250 | 100 | | 0 | 200 | | 250 | 1,025 | 400 | 50 | 1,975 | 0-15 | 5-110 | 60-1,320 | | 0-450 | 250-700 | 550-1,050 | | | |
| 225 | 150 | 0 | 25 | 250 | | 300 | 1,025 | 425 | 125 | 1,950 | 0-15 | 10-130 | 70-1,560 | | 0-450 | 300-700 | 600-1,050 | | | |
| 200 | 250 | 25 | 75 | 250 | | 325 | 1,025 | 425 | 150 | 1,925 | 0-20 | 10-180 | 90-2,160 | | 0-500 | 300-700 | 600-1,050 | | | |
| 175 | 275 | 50 | 100 | 275 | | 325 | 1,025 | 450 | 175 | 1,900 | 0-25 | 10-220 | 110-2,700 | | 0-500 | 350-700 | 600-1,050 | | | |
| 150 | 300 | 100 | 125 | 300 | | 350 | 1,050 | 450 | 200 | 1,875 | 0-35 | 15-280 | 140-3,400 | | 0-500 | 350-700 | 600-1,050 | | | |
| 125 | 325 | 125 | 150 | 300 | 0 | 350 | 1,050 | 450 | 225 | 1,850 | 0-40 | 15-370 | 180-4,500 | | 0-500 | 350-700 | 600-1,050 | | | |
| 100 | 350 | 175 | 175 | 325 | 275 | 350 | 1,050 | 475 | 225 | 1,825 | 5-50 | 20-450 | 220-5,400 | | 50-500 | 350-700 | 600-1,050 | | | |
| 75 | 350 | 200 | 175 | 325 | 300 | 375 | 1,050 | 475 | 250 | 1,775 | 5-70 | 25-580 | 280-7,000 | 0 | 100-500 | 350-700 | 600-1,050 | 0 | | |
| 50 | 350 | 200 | 200 | 325 | 300 | 375 | 925 | 425 | 225 | 1,750 | 5-80 | 30-700 | 340-8,400 | 0-5 | 100-500 | 350-700 | 600-1,050 | 0-50 | | |
| 25 | 300 | 200 | 175 | 325 | 275 | 350 | 775 | 350 | 200 | 1,725 | | | | | | | | | | |
| 0 | 225 | 150 | 125 | 275 | 250 | 300 | 625 | 300 | 150 | 1,675 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | FALLOUT GOVERNS | |

SFR 1

Figure 4.6c continued.

¹Small Free Rocket.

CASUALTY and DAMAGE Tables
Small Free Rocket

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Rodius of sofety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Worned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,050 | | 0 | | | | | | | | | | | 3,025 | 2,150 | 1,700 | 1,750 | 1,350 | 875 | 1,225 | 875 | 350 |
| 1,025 | | 225 | | | | | | | | | | 0 | 3,025 | 2,150 | 1,700 | 1,750 | 1,350 | 900 | 1,250 | 900 | 425 |
| 1,000 | | 325 | | | | 0 | | | | | | 175 | 3,025 | 2,150 | 1,725 | 1,775 | 1,375 | 925 | 1,275 | 925 | 475 |
| 975 | | 400 | | | | 150 | | | | | | 275 | 3,025 | 2,175 | 1,750 | 1,775 | 1,400 | 950 | 1,300 | 950 | 525 |
| 950 | | 450 | | | | 250 | | | | 0 | | 350 | 3,050 | 2,175 | 1,750 | 1,800 | 1,400 | 1,000 | 1,300 | 975 | 575 |
| 925 | | 500 | | | | 350 | | | | 200 | | 425 | 3,050 | 2,200 | 1,775 | 1,800 | 1,425 | 1,000 | 1,325 | 1,000 | 600 |
| 900 | | 550 | | | | 400 | | | | 300 | 0 | 475 | 3,050 | 2,200 | 1,775 | 1,825 | 1,450 | 1,025 | 1,350 | 1,025 | 650 |
| 875 | | 575 | | | | 450 | | | | 350 | 650 | 650 | 3,075 | 2,225 | 1,800 | 1,825 | 1,450 | 1,050 | 1,350 | 1,050 | 675 |
| 850 | | 625 | | | | 500 | | | | 400 | 750 | 750 | 3,075 | 2,225 | 1,800 | 1,850 | 1,475 | 1,075 | 1,375 | 1,075 | 700 |
| 825 | | 650 | | 0 | | 550 | | | | 450 | 850 | 850 | 3,075 | 2,225 | 1,800 | 1,850 | 1,500 | 1,100 | 1,400 | 1,075 | 725 |
| 800 | 0 | 675 | | 200 | | 575 | | | | 500 | 925 | 925 | 3,100 | 2,250 | 1,825 | 1,875 | 1,500 | 1,100 | 1,400 | 1,100 | 750 |
| 775 | 175 | 700 | | 275 | | 600 | | | | 550 | 975 | 975 | 3,100 | 2,250 | 1,825 | 1,875 | 1,525 | 1,125 | 1,425 | 1,125 | 800 |
| 750 | 275 | 725 | | 350 | 0 | 650 | | | | 775 | 1,050 | 1,050 | 3,100 | 2,275 | 1,850 | 1,900 | 1,525 | 1,150 | 1,425 | 1,150 | 800 |
| 725 | 325 | 750 | | 400 | 175 | 675 | | | 0 | 600 | 1,150 | 1,150 | 3,100 | 2,275 | 1,850 | 1,900 | 1,550 | 1,150 | 1,550 | 1,150 | 825 |
| 700 | 375 | 775 | | 425 | 250 | 700 | | | 150 | 625 | 1,300 | 1,300 | 3,125 | 2,275 | 1,875 | 1,900 | 1,550 | 1,175 | 1,700 | 1,175 | 850 |
| 675 | 425 | 800 | | 475 | 300 | 725 | | | 225 | 650 | 1,500 | 1,500 | 3,125 | 2,275 | 1,875 | 1,925 | 1,550 | 1,200 | 1,725 | 1,175 | 875 |
| 650 | 450 | 825 | | 500 | 350 | 750 | | 0 | 300 | 675 | 1,600 | 1,600 | 3,125 | 2,300 | 1,875 | 1,925 | 1,575 | 1,200 | 1,725 | 1,200 | 900 |
| 625 | 500 | 850 | 0 | 525 | 400 | 750 | | 175 | 350 | 700 | 1,625 | 1,625 | 3,125 | 2,300 | 1,900 | 1,925 | 1,575 | 1,225 | 1,725 | 1,200 | 925 |
| 600 | 525 | 850 | 150 | 550 | 450 | 775 | | 250 | 375 | 725 | 1,650 | 1,650 | 3,125 | 2,300 | 1,900 | 1,950 | 1,600 | 1,225 | 1,725 | 1,225 | 925 |
| 575 | 550 | 875 | 225 | 575 | 475 | 800 | | 300 | 425 | 750 | 1,650 | 1,650 | 3,150 | 2,300 | 1,900 | 1,950 | 1,600 | 1,250 | 1,725 | 1,225 | 950 |
| 550 | 575 | 900 | 300 | 600 | 500 | 825 | | 350 | 450 | 775 | 1,625 | 1,625 | 3,150 | 2,325 | 1,900 | 1,950 | 1,600 | 1,250 | 1,750 | 1,250 | 950 |
| 525 | 600 | 900 | 325 | 625 | 525 | 825 | | 375 | 525 | 775 | 1,625 | 1,625 | 3,150 | 2,325 | 1,925 | 1,950 | 1,625 | 1,275 | 1,725 | 1,250 | 975 |
| 500 | 625 | 925 | 375 | 650 | 550 | 850 | | 425 | 825 | 825 | 1,600 | 1,600 | 3,150 | 2,325 | 1,925 | 1,975 | 1,625 | 1,275 | 1,700 | 1,275 | 975 |
| 475 | 650 | 925 | 400 | 675 | 575 | 875 | 0 | 450 | 875 | 875 | 1,550 | 1,550 | 3,150 | 2,325 | 1,925 | 1,975 | 1,625 | 1,275 | 1,675 | 1,275 | 1,000 |
| 450 | 650 | 950 | 425 | 700 | 600 | 875 | 100 | 475 | 925 | 925 | 1,525 | 1,525 | 3,150 | 2,350 | 1,950 | 1,975 | 1,650 | 1,300 | 1,650 | 1,300 | 1,000 |
| 425 | 675 | 950 | 450 | 700 | 600 | 875 | 175 | 500 | 925 | 925 | 1,475 | 1,475 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,300 | 1,625 | 1,300 | 1,025 |
| 400 | 700 | 975 | 475 | 725 | 625 | 900 | 225 | 525 | 925 | 925 | 1,450 | 1,450 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,300 | 1,600 | 1,300 | 1,025 |
| 375 | 700 | 975 | 500 | 725 | 650 | 900 | 275 | 525 | 925 | 925 | 1,425 | 1,425 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,325 | 1,575 | 1,300 | 1,050 |
| 350 | 725 | 975 | 500 | 750 | 650 | 925 | 300 | 550 | 900 | 900 | 1,400 | 1,400 | 3,175 | 2,350 | 1,950 | 2,000 | 1,675 | 1,325 | 1,575 | 1,325 | 1,050 |
| 325 | 725 | 1,000 | 525 | 750 | 675 | 925 | 325 | 575 | 875 | 875 | 1,375 | 1,375 | 3,175 | 2,350 | 1,975 | 2,000 | 1,675 | 1,325 | 1,575 | 1,325 | 1,050 |
| 300 | 750 | 1,000 | 550 | 775 | 675 | 950 | 350 | 575 | 850 | 900 | 1,350 | 1,350 | 3,175 | 2,350 | 1,975 | 2,000 | 1,675 | 1,350 | 1,600 | 1,325 | 1,075 |
| 275 | 750 | 1,000 | 550 | 775 | 700 | 950 | 375 | 600 | 850 | 900 | 1,300 | 1,300 | 3,175 | 2,375 | 1,975 | 2,025 | 1,675 | 1,350 | 1,600 | 1,325 | 1,075 |
| 250 | 750 | 1,025 | 575 | 775 | 700 | 950 | 400 | 600 | 825 | 900 | 1,275 | 1,275 | 3,175 | 2,375 | 1,975 | 2,025 | 1,675 | 1,350 | 1,600 | 1,350 | 1,075 |
| 225 | 775 | 1,025 | 575 | 800 | 700 | 950 | 400 | 600 | 800 | 925 | 1,250 | 1,250 | 3,175 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,075 |
| 200 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 800 | 925 | 1,225 | 1,225 | 3,175 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 175 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 775 | 925 | 1,200 | 1,200 | 3,200 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 150 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 750 | 925 | 1,175 | 1,175 | 3,200 | 2,375 | 2,000 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 125 | 775 | 1,050 | 600 | 800 | 725 | 975 | 450 | 650 | 750 | 925 | 1,150 | 1,150 | 3,200 | 2,375 | 2,000 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 100 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 725 | 950 | 1,125 | 1,125 | 3,150 | 2,375 | 1,950 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 75 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 700 | 950 | 1,125 | 1,125 | 2,800 | 2,200 | 1,800 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 50 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 725 | 950 | 1,075 | 1,075 | 2,550 | 2,025 | 1,650 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |
| 25 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 725 | 950 | 1,075 | 1,075 | 2,275 | 1,850 | 1,525 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |
| 0 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 725 | 950 | 1,050 | 1,050 | 2,125 | 1,700 | 1,375 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |

HOB_{fs} = 52 mLow HOB_{min} = 91 mHigh HOB_{min} = 206 mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 4.6d.

CASUALTY and DAMAGE Tables

Small Free Rocket

DELTA/5 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d Degree Burns | | | 1 PSI
aver-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,050 | | | | | | | 1,175 | | | 2,875 | | | 0-5 | | | | 0-500 | |
| 1,025 | | | | | | | 1,200 | | | 2,875 | | | 0-5 | | | | 0-550 | |
| 1,000 | | | | | | | 1,225 | | | 2,875 | | | 0-10 | | | | 0-600 | |
| 975 | | | | | | | 1,225 | | | 2,900 | | | 0-10 | | | | 0-600 | |
| 950 | | | | | | | 1,250 | | | 2,900 | | | 0-10 | | | | 0-650 | |
| 925 | | | | | | | 1,275 | | | 2,900 | | | 0-10 | | | | 0-700 | |
| 900 | | | | | | | 1,300 | | | 2,900 | | | 0-15 | | | | 0-750 | |
| 875 | | | | | | | 1,300 | | | 2,925 | | | 0-15 | | | | 0-750 | |
| 850 | | | | | | | 1,325 | | | 2,925 | | | 0-20 | | | | 0-800 | |
| 825 | | | | | | | 1,350 | | | 2,925 | | 0 | 0-20 | | | 0 | 0-800 | |
| 800 | | | | | | | 1,350 | | | 2,925 | | 0-5 | 0-25 | | | 0-50 | 0-850 | |
| 775 | | | | | | | 1,375 | | | 2,900 | | 0-5 | 0-30 | | | 0-200 | 0-850 | |
| 750 | | | | | | | 1,375 | 0 | | 2,900 | | 0-5 | 0-35 | | | 0-300 | 0-900 | |
| 725 | | | | | | | 1,400 | 75 | | 2,900 | | 0-5 | 0-45 | | | 0-350 | 0-900 | |
| 700 | | | | | | | 1,400 | 200 | | 2,900 | | 0-5 | 5-50 | | | 0-400 | 50-950 | |
| 675 | | | | | | | 1,425 | 275 | | 2,875 | | 0-10 | 5-65 | | | 0-450 | 200-950 | |
| 650 | | | | | | | 1,425 | 325 | | 2,875 | | 0-10 | 5-80 | | | 0-500 | 300-950 | |
| 625 | | | | | | | 1,450 | 375 | | 2,850 | | 0-10 | 5-100 | | | 0-500 | 350-1,000 | |
| 600 | | | | | | | 1,450 | 425 | | 2,850 | | 0-10 | 5-120 | | | 0-550 | 400-1,000 | |
| 575 | | | | | | | 1,475 | 450 | | 2,850 | 0 | 0-15 | 10-150 | | 0 | 0-600 | 400-1,000 | |
| 550 | | | | | | | 1,475 | 475 | | 2,825 | 0-5 | 0-20 | 10-190 | | 0-50 | 0-600 | 450-1,050 | |
| 525 | | | | | | | 1,475 | 500 | | 2,825 | 0-5 | 0-25 | 10-250 | | 0-200 | 0-650 | 450-1,050 | |
| 500 | | | | 0 | | | 1,500 | 525 | | 2,800 | 0-5 | 0-25 | 15-300 | | 0-250 | 0-650 | 500-1,050 | |
| 475 | | | | 50 | | | 1,500 | 550 | | 2,800 | 0-5 | 0-40 | 20-450 | | 0-300 | 0-650 | 550-1,050 | |
| 450 | | | | 100 | | | 1,500 | 575 | | 2,775 | 0-5 | 5-50 | 25-570 | | 0-300 | 50-700 | 550-1,100 | |
| 425 | | | | 150 | | | 1,525 | 600 | | 2,750 | 0-10 | 5-70 | 30-750 | | 0-350 | 150-700 | 600-1,100 | |
| 400 | 0 | | | 200 | | 0 | 1,525 | 600 | 0 | 2,725 | 0-10 | 5-90 | 40-1,000 | | 0-400 | 200-700 | 600-1,100 | |
| 375 | 50 | | | 250 | | 400 | 1,525 | 625 | 125 | 2,725 | 0-15 | 5-110 | 50-1,300 | | 0-400 | 250-750 | 600-1,100 | |
| 350 | 100 | | | 300 | | 425 | 1,525 | 650 | 175 | 2,700 | 0-15 | 10-140 | 70-1,600 | | 0-400 | 300-750 | 650-1,100 | |
| 325 | 150 | | 0 | 325 | | 425 | 1,550 | 650 | 225 | 2,675 | 0-20 | 10-165 | 80-1,980 | | 0-400 | 350-750 | 650-1,100 | |
| 300 | 250 | 0 | 50 | 350 | | 425 | 1,550 | 675 | 250 | 2,650 | 0-25 | 10-200 | 100-2,340 | | 0-450 | 350-750 | 650-1,150 | |
| 275 | 375 | 25 | 100 | 375 | | 450 | 1,550 | 675 | 275 | 2,625 | 0-25 | 10-240 | 120-2,820 | | 0-500 | 400-800 | 650-1,150 | |
| 250 | 400 | 75 | 150 | 400 | | 450 | 1,550 | 675 | 300 | 2,600 | 0-35 | 15-275 | 140-3,300 | | 0-500 | 400-800 | 700-1,150 | |
| 225 | 425 | 100 | 175 | 400 | | 450 | 1,550 | 700 | 325 | 2,575 | 0-35 | 15-325 | 160-3,900 | | 0-550 | 400-800 | 700-1,150 | |
| 200 | 450 | 125 | 200 | 425 | | 475 | 1,550 | 700 | 350 | 2,550 | 5-50 | 20-450 | 220-5,400 | | 50-550 | 450-800 | 700-1,150 | |
| 175 | 450 | 175 | 225 | 450 | 0 | 475 | 1,575 | 700 | 350 | 2,525 | 5-60 | 25-550 | 280-6,600 | 0 | 100-550 | 450-800 | 700-1,150 | |
| 150 | 475 | 225 | 225 | 450 | 400 | 500 | 1,575 | 725 | 375 | 2,475 | 5-80 | 30-700 | 340-8,400 | 0-5 | 150-550 | 450-800 | 700-1,150 | 0-50 |
| 125 | 500 | 275 | 250 | 475 | 425 | 500 | 1,575 | 725 | 375 | 2,450 | 5-100 | 40-940 | 450-11,000 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-100 |
| 100 | 500 | 300 | 250 | 475 | 425 | 525 | 1,550 | 725 | 400 | 2,425 | 5-125 | 50-1,140 | 540-13,500 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-150 |
| 75 | 500 | 300 | 275 | 475 | 425 | 525 | 1,400 | 650 | 350 | 2,400 | 10-160 | 60-1,450 | 700-17,400 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-150 |
| 50 | 475 | 300 | 275 | 475 | 400 | 500 | 1,250 | 575 | 325 | 2,350 | FALLOUT GOVERNS | | | | | | | |
| 25 | 450 | 275 | 250 | 425 | 350 | 475 | 1,100 | 500 | 275 | 2,325 | | | | | | | | |
| 0 | 325 | 225 | 175 | 375 | 300 | 400 | 925 | 450 | 250 | 2,275 | | | | | | | | |

SFR 1

Figure 4.6d continued.

CASUALTY and DAMAGE Tables
Small Free Rocket

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,200 | | 0 | | | | | | | | | 600 | 600 | 3,850 | 2,975 | 2,700 | 2,375 | 1,375 | 925 | 1,275 | 900 | 100 |
| 1,150 | | 250 | | | | | | | | | 850 | 850 | 3,850 | 3,000 | 2,725 | 2,400 | 1,400 | 1,000 | 1,325 | 950 | 350 |
| 1,100 | | 400 | | | | | 0 | | | 0 | 1,000 | 1,000 | 3,875 | 3,000 | 2,750 | 2,425 | 1,450 | 1,050 | 1,375 | 1,025 | 500 |
| 1,050 | | 525 | | | | | 325 | | | 150 | 1,150 | 1,150 | 3,875 | 3,025 | 2,750 | 2,425 | 1,500 | 1,100 | 1,400 | 1,075 | 600 |
| 1,000 | | 625 | | | | | 450 | | | 350 | 1,300 | 1,300 | 3,900 | 3,050 | 2,775 | 2,450 | 1,525 | 1,150 | 1,500 | 1,125 | 675 |
| 950 | | 700 | | 0 | | | 550 | | | 475 | 1,500 | 1,500 | 3,900 | 3,050 | 2,800 | 2,475 | 1,550 | 1,200 | 1,650 | 1,150 | 750 |
| 900 | 0 | 750 | | 200 | | | 625 | | | 550 | 1,750 | 1,750 | 3,925 | 3,075 | 2,800 | 2,500 | 1,575 | 1,225 | 2,100 | 1,200 | 800 |
| 850 | 275 | 800 | | 350 | 0 | | 700 | | 0 | 625 | 2,125 | 2,125 | 3,925 | 3,075 | 2,825 | 2,500 | 1,600 | 1,250 | 2,175 | 1,250 | 850 |
| 800 | 400 | 850 | | 450 | 300 | | 750 | | 175 | 700 | 2,175 | 2,175 | 3,950 | 3,100 | 2,850 | 2,525 | 1,625 | 1,300 | 2,175 | 1,275 | 900 |
| 775 | 450 | 875 | | 500 | 350 | | 775 | | 475 | 725 | 2,200 | 2,200 | 3,950 | 3,100 | 2,850 | 2,525 | 1,650 | 1,300 | 2,175 | 1,275 | 925 |
| 750 | 500 | 900 | | 550 | 400 | | 800 | | 550 | 750 | 2,200 | 2,200 | 3,950 | 3,100 | 2,850 | 2,550 | 1,650 | 1,325 | 2,175 | 1,325 | 950 |
| 725 | 525 | 925 | 0 | 575 | 450 | | 825 | 175 | 625 | 775 | 2,200 | 2,200 | 3,950 | 3,125 | 2,850 | 2,550 | 1,675 | 1,350 | 2,175 | 1,400 | 950 |
| 700 | 550 | 950 | 100 | 600 | 475 | | 850 | 250 | 675 | 800 | 2,175 | 2,175 | 3,975 | 3,125 | 2,875 | 2,550 | 1,675 | 1,350 | 2,225 | 1,475 | 975 |
| 675 | 600 | 950 | 200 | 625 | 525 | | 875 | 325 | 725 | 825 | 2,175 | 2,175 | 3,975 | 3,125 | 2,875 | 2,550 | 1,700 | 1,350 | 2,200 | 1,500 | 1,000 |
| 650 | 625 | 975 | 275 | 650 | 550 | | 875 | 375 | 1,200 | 1,200 | 2,150 | 2,150 | 3,975 | 3,150 | 2,875 | 2,575 | 1,700 | 1,375 | 2,175 | 1,475 | 1,000 |
| 625 | 650 | 1,000 | 325 | 675 | 575 | | 900 | 400 | 1,225 | 1,225 | 2,125 | 2,125 | 3,975 | 3,150 | 2,875 | 2,575 | 1,700 | 1,400 | 2,150 | 1,475 | 1,025 |
| 600 | 650 | 1,000 | 375 | 700 | 600 | | 925 | 450 | 1,250 | 1,250 | 2,100 | 2,100 | 3,975 | 3,150 | 2,900 | 2,575 | 1,725 | 1,400 | 2,125 | 1,450 | 1,050 |
| 575 | 675 | 1,025 | 400 | 725 | 625 | | 950 | 475 | 1,275 | 1,275 | 2,075 | 2,075 | 3,975 | 3,150 | 2,900 | 2,600 | 1,725 | 1,400 | 2,100 | 1,425 | 1,050 |
| 550 | 700 | 1,025 | 450 | 750 | 650 | | 950 | 500 | 1,275 | 1,275 | 2,050 | 2,050 | 3,975 | 3,150 | 2,900 | 2,600 | 1,725 | 1,425 | 2,075 | 1,425 | 1,075 |
| 525 | 725 | 1,050 | 475 | 750 | 675 | | 975 | 525 | 1,250 | 1,250 | 2,000 | 2,000 | 4,000 | 3,150 | 2,900 | 2,600 | 1,750 | 1,425 | 2,025 | 1,425 | 1,075 |
| 500 | 825 | 1,050 | 500 | 775 | 675 | | 975 | 550 | 1,250 | 1,250 | 1,975 | 1,975 | 4,000 | 3,175 | 2,900 | 2,600 | 1,750 | 1,450 | 2,000 | 1,425 | 1,100 |
| 475 | 850 | 1,075 | 525 | 800 | 700 | | 1,000 | 575 | 1,225 | 1,225 | 1,950 | 1,950 | 4,000 | 3,175 | 2,925 | 2,600 | 1,750 | 1,450 | 1,950 | 1,425 | 1,100 |
| 450 | 850 | 1,075 | 550 | 800 | 725 | | 1,000 | 600 | 1,200 | 1,200 | 1,900 | 1,900 | 4,000 | 3,175 | 2,925 | 2,600 | 1,750 | 1,450 | 1,925 | 1,425 | 1,125 |
| 425 | 850 | 1,100 | 575 | 825 | 725 | | 1,025 | 625 | 1,175 | 1,175 | 1,850 | 1,850 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,450 | 1,875 | 1,450 | 1,125 |
| 400 | 850 | 1,100 | 575 | 825 | 750 | | 1,025 | 625 | 1,175 | 1,175 | 1,825 | 1,825 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,475 | 1,850 | 1,450 | 1,125 |
| 375 | 875 | 1,100 | 600 | 850 | 750 | | 1,025 | 650 | 1,150 | 1,150 | 1,775 | 1,775 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,475 | 1,800 | 1,450 | 1,150 |
| 350 | 875 | 1,125 | 625 | 850 | 775 | | 1,050 | 650 | 1,125 | 1,125 | 1,750 | 1,750 | 4,000 | 3,175 | 2,925 | 2,625 | 1,800 | 1,475 | 1,750 | 1,450 | 1,150 |
| 325 | 875 | 1,125 | 650 | 850 | 775 | | 1,050 | 675 | 1,100 | 1,100 | 1,700 | 1,700 | 4,025 | 3,175 | 2,950 | 2,625 | 1,800 | 1,475 | 1,725 | 1,475 | 1,150 |
| 300 | 875 | 1,125 | 650 | 875 | 800 | | 1,050 | 675 | 1,075 | 1,075 | 1,650 | 1,650 | 4,025 | 3,175 | 2,950 | 2,625 | 1,800 | 1,500 | 1,725 | 1,475 | 1,175 |
| 275 | 875 | 1,150 | 650 | 875 | 800 | | 1,075 | 700 | 1,075 | 1,075 | 1,625 | 1,625 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,725 | 1,475 | 1,175 |
| 250 | 875 | 1,150 | 650 | 900 | 800 | | 1,075 | 700 | 1,050 | 1,050 | 1,600 | 1,600 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,475 | 1,175 |
| 225 | 875 | 1,150 | 675 | 900 | 825 | | 1,075 | 700 | 1,025 | 1,025 | 1,575 | 1,575 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,475 | 1,175 |
| 200 | 875 | 1,150 | 675 | 900 | 825 | | 1,075 | 725 | 1,025 | 1,050 | 1,550 | 1,550 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 175 | 875 | 1,150 | 700 | 900 | 825 | | 1,075 | 725 | 1,000 | 1,050 | 1,500 | 1,500 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 150 | 875 | 1,150 | 700 | 900 | 825 | | 1,100 | 725 | 975 | 1,050 | 1,475 | 1,475 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 125 | 875 | 1,175 | 700 | 900 | 850 | | 1,100 | 725 | 975 | 1,050 | 1,450 | 1,450 | 3,800 | 3,050 | 2,850 | 2,600 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 100 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 750 | 950 | 1,050 | 1,425 | 1,425 | 3,575 | 2,825 | 2,600 | 2,525 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 75 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 750 | 925 | 1,050 | 1,400 | 1,400 | 3,325 | 2,600 | 2,350 | 2,450 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 50 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 750 | 900 | 1,050 | 1,375 | 1,375 | 3,075 | 2,350 | 2,100 | 2,350 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 25 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 750 | 900 | 1,050 | 1,350 | 1,350 | 2,850 | 2,125 | 1,850 | 2,275 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 0 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 750 | 875 | 1,050 | 1,325 | 1,325 | 2,575 | 1,875 | 1,600 | 2,175 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |

$HOB_{fs} = 65 \text{ m}$
 $Low\ HOB_{min} = 115 \text{ m}$
 $High\ HOB_{min} = 259 \text{ m}$
 $HOB_{99} = HOB_{fs} + 3.5\ PE_h \text{ m}$
 $HOB_{98} = HOB_{fs} + 3.0\ PE_h \text{ m}$
 $HOB_{90} = HOB_{fs} + 1.9\ PE_h \text{ m}$

Figure 4.6c.

CASUALTY and DAMAGE Tables
Small Free Rocket
All figures in meters

ECHO/10 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,200 | | | | | | | 1,775 | | | 3,650 | | | 0-5 | | | | 0-650 | |
| 1,150 | | | | | | | 1,825 | | | 3,675 | | | 0-5 | | | | 0-750 | |
| 1,100 | | | | | | | 1,850 | | | 3,675 | | | 0-10 | | | | 0-800 | |
| 1,050 | | | | | | | 1,875 | 0 | | 3,675 | | | 0-10 | | | | 0-850 | |
| 1,000 | | | | | | | 1,900 | 150 | | 3,675 | | | 0-15 | | | | 0-950 | |
| 950 | | | | | | | 1,925 | 350 | | 3,675 | | 0 | 0-20 | | | 0 | 0-1,000 | |
| 900 | | | | | | | 1,950 | 450 | | 3,650 | | 0-5 | 0-25 | | | 0-50 | 0-1,050 | |
| 850 | | | | | | | 1,975 | 550 | | 3,625 | | 0-5 | 0-35 | | | 0-350 | 0-1,050 | |
| 800 | | | | | | | 2,000 | 625 | | 3,600 | | 0-5 | 5-45 | | | 0-450 | 50-1,100 | |
| 775 | | | | | | | 2,000 | 650 | | 3,600 | | 0-5 | 5-55 | | | 0-500 | 200-1,150 | |
| 750 | | | | | | | 2,025 | 675 | | 3,600 | | 0-10 | 5-70 | | | 0-550 | 300-1,150 | |
| 725 | | | | | | | 2,025 | 700 | | 3,575 | | 0-10 | 5-85 | | | 0-550 | 350-1,150 | |
| 700 | | | | | | | 2,025 | 725 | | 3,575 | | 0-10 | 5-100 | | | 0-600 | 400-1,200 | |
| 675 | | | | | | | 2,050 | 750 | | 3,550 | | 0-15 | 5-125 | | | 0-600 | 450-1,200 | |
| 650 | | | | | | | 2,050 | 775 | | 3,550 | | 0-15 | 10-160 | | | 0-650 | 500-1,200 | |
| 625 | | | | 0 | | | 2,050 | 800 | | 3,525 | 0 | 0-20 | 10-200 | | 0 | 0-700 | 500-1,200 | |
| 600 | | | | 50 | | | 2,075 | 800 | | 3,525 | 0-5 | 0-20 | 10-240 | | 0-50 | 0-700 | 550-1,250 | |
| 575 | | | | 125 | | | 2,075 | 825 | | 3,500 | 0-5 | 0-25 | 15-300 | | 0-200 | 0-700 | 600-1,250 | |
| 550 | | | | 175 | | | 2,075 | 850 | 0 | 3,475 | 0-5 | 0-35 | 15-380 | | 0-250 | 0-750 | 600-1,250 | |
| 525 | | | | 225 | | | 2,075 | 875 | 125 | 3,450 | 0-5 | 0-45 | 20-500 | | 0-300 | 0-750 | 650-1,250 | |
| 500 | 0 | | | 275 | | | 2,100 | 875 | 200 | 3,450 | 0-10 | 5-50 | 25-600 | | 0-350 | 50-800 | 650-1,300 | |
| 475 | 50 | | | 325 | | 0 | 2,100 | 900 | 250 | 3,425 | 0-10 | 5-75 | 40-900 | | 0-400 | 150-800 | 650-1,300 | |
| 450 | 125 | | | 375 | | 575 | 2,100 | 900 | 300 | 3,400 | 0-15 | 5-100 | 50-1,140 | | 0-400 | 250-800 | 700-1,300 | |
| 425 | 175 | | 0 | 400 | | 600 | 2,100 | 925 | 325 | 3,375 | 0-15 | 5-125 | 60-1,500 | | 0-450 | 300-800 | 700-1,300 | |
| 400 | 225 | | 25 | 425 | | 600 | 2,125 | 925 | 375 | 3,350 | 0-20 | 10-170 | 80-1,980 | | 0-450 | 300-850 | 700-1,300 | |
| 375 | 350 | 0 | 75 | 475 | | 600 | 2,125 | 950 | 400 | 3,325 | 0-25 | 10-220 | 120-2,600 | | 0-500 | 350-850 | 750-1,300 | |
| 350 | 475 | 25 | 125 | 475 | | 625 | 2,125 | 950 | 400 | 3,300 | 0-30 | 15-270 | 140-3,200 | | 0-500 | 400-850 | 750-1,350 | |
| 325 | 500 | 75 | 175 | 500 | | 625 | 2,125 | 950 | 425 | 3,275 | 0-40 | 15-330 | 160-3,960 | | 0-500 | 400-850 | 750-1,350 | |
| 300 | 550 | 100 | 200 | 525 | | 625 | 2,125 | 975 | 450 | 3,250 | 5-45 | 20-390 | 200-4,680 | | 50-550 | 400-850 | 750-1,350 | |
| 275 | 575 | 150 | 250 | 550 | | 625 | 2,125 | 975 | 475 | 3,225 | 5-55 | 20-470 | 230-5,650 | 0 | 150-550 | 450-900 | 800-1,350 | 0 |
| 250 | 575 | 175 | 275 | 550 | | 625 | 2,125 | 975 | 475 | 3,200 | 5-65 | 25-550 | 270-6,600 | 0-5 | 200-550 | 450-900 | 800-1,350 | 0-50 |
| 225 | 600 | 225 | 275 | 575 | 0 | 650 | 2,150 | 975 | 500 | 3,175 | 5-75 | 30-650 | 320-7,800 | 0-5 | 200-600 | 450-900 | 800-1,350 | 0-150 |
| 200 | 625 | 275 | 300 | 600 | 450 | 650 | 2,150 | 1,000 | 500 | 3,150 | 5-100 | 40-900 | 440-10,800 | 0-5 | 250-600 | 500-900 | 800-1,350 | 0-150 |
| 175 | 650 | 350 | 325 | 600 | 525 | 650 | 2,150 | 1,000 | 500 | 3,125 | 5-125 | 50-1,100 | 540-13,200 | 0-5 | 250-600 | 500-900 | 800-1,350 | 0-200 |
| 150 | 650 | 375 | 325 | 625 | 550 | 650 | 2,150 | 1,000 | 525 | 3,075 | 10-160 | 60-1,400 | 680-16,800 | 0-5 | 300-600 | 500-900 | 800-1,350 | 0-200 |
| 125 | 650 | 375 | 350 | 625 | 575 | 650 | 2,075 | 975 | 525 | 3,050 | 10-200 | 75-1,850 | 900-22,200 | 0-5 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 100 | 650 | 375 | 350 | 650 | 575 | 650 | 1,900 | 900 | 475 | 3,025 | 10-250 | 90-2,250 | 1,080-27,000 | 0-10 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 75 | 650 | 400 | 375 | 625 | 575 | 650 | 1,750 | 825 | 450 | 2,975 | 15-320 | 120-2,900 | 1,400-34,800 | 0-10 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 50 | 625 | 375 | 350 | 600 | 525 | 625 | 1,575 | 750 | 400 | 2,950 | FALLOUT GOVERNS | | | | | | | |
| 25 | 550 | 350 | 300 | 575 | 500 | 575 | 1,425 | 675 | 375 | 2,900 | | | | | | | | |
| 0 | 450 | 300 | 250 | 500 | 425 | 500 | 1,250 | 600 | 325 | 2,875 | | | | | | | | |

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Figure 4.6e continued.

¹Small Free Rocket.

CONTINGENT EFFECTS Tables **Small Free Rocket**

INDUCED RADIATION IN SOILS (See note 1.) **Fallout activity is not significant.**

| Yield
KT | HOB | Estimated radii in meters of 2 rad/hr contour of induced radiation,
1 hour after burst. (See note 2.) | | | | Estimated induced radiation intensity, 1 hour after
burst, at GZ. In rad/hr (See note 2.) | | | |
|-------------|------|--|---------------------------------|--------------------------------------|---|--|--------------|---------------|--------------|
| | | Soil type I
(Liberia, Africa) | Soil type II
(Nevada desert) | Soil type III
(lava clay, Hawaii) | Soil type IV
(beach sand,
Pensacola, Fla) | Soil type I | Soil type II | Soil type III | Soil type IV |
| ALFA/.5 | Low | 0-350 | 150-550 | 450-850 | 0 | 0-20 | 10-175 | 85-2,100 | 0 |
| | High | 0-350 | 150-550 | 450-850 | 0 | 0-15 | 5-120 | 55-1,350 | 0 |
| BRAVO/1 | Low | 50-400 | 300-600 | 450-950 | 0 | 5-40 | 15-350 | 170-4,200 | 0 |
| | High | 0-400 | 300-600 | 450-950 | 0 | 0-20 | 10-185 | 90-2,220 | 0 |
| CHARLIE/2 | Low | 100-500 | 350-700 | 600-1,050 | 0-50 | 5-80 | 30-700 | 340-8,400 | 0-5 |
| | High | 0-500 | 350-700 | 600-1,050 | 0 | 0-35 | 15-280 | 140-3,400 | 0 |
| DELTA/5 | Low | 200-550 | 450-800 | 700-1,150 | 0-150 | 10-160 | 60-1,450 | 700-17,400 | 0-5 |
| | High | 50-550 | 450-800 | 700-1,150 | 0 | 5-50 | 20-450 | 220-5,400 | 0 |
| ECHO/10 | Low | 300-600 | 500-900 | 800-1,350 | 0-250 | 15-250 | 120-2,900 | 1,400-34,800 | 0-10 |
| | High | 200-550 | 450-900 | 800-1,350 | 0-50 | 5-65 | 25-550 | 270-6,600 | 0-5 |

- NOTES: 1. For description of chemical composition and effects of variations in chemical composition in soil types, see FM 101-31-1, app III, annex F.
2. For range dependent delivery systems intensities and 2 rad/hr contours are given for minimum ranges.

Figure 4.7a.

TREE BLOWDOWN (See note.) **All distances in meters**

| Yield

KT | OBSTACLES TO MOVEMENT | | | | | | | CASUALTIES TO
EXPOSED PERSONNEL | | |
|-----------------|--------------------------------------|------------|-------------|------------|-----------------------------|---------------------|----------------------|------------------------------------|---------------------|----------------------|
| | Foot and wheeled
vehicle movement | | | | Tracked vehicle
movement | | | | | |
| | Type
I | Type
II | Type
III | Type
IV | Type
I | Types
II, IVa(d) | Types
III, IVa(f) | Type
I | Types
II, IVa(d) | Types
III, IVa(f) |
| ALFA/.5 | 250 | 300 | 300 | 450 | 250 | 300 | 300 | 150 | 200 | 200 |
| BRAVO/1 | 300 | 400 | 400 | 700 | 300 | 400 | 400 | 200 | 300 | 300 |
| CHARLIE/2 | 350 | 500 | 550 | 900 | 350 | 500 | 550 | 250 | 400 | 400 |
| DELTA/5 | 600 | 800 | 900 | 1,400 | 600 | 800 | 900 | 400 | 600 | 600 |
| ECHO/10 | 750 | 1,000 | 1,100 | 1,900 | 750 | 1,000 | 1,100 | 600 | 800 | 900 |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 4.7b.

LIGHT AIRCRAFT IN FLIGHT (See note 1.)

| Yield
KT | AIRCRAFT SAFETY RADII-meters
(See note 2.) | | |
|-------------|---|-----------------------|---------------------------|
| | Light fixed
wing | Recon and
obsn hel | Transport and
util hel |
| ALFA/.5 | 4,000 | 4,000 | 4,000 |
| BRAVO/1 | 5,000 | 5,000 | 5,000 |
| CHARLIE/2 | 6,000 | 6,000 | 5,000 |
| DELTA/5 | 9,000 | 9,000 | 7,000 |
| ECHO/10 | 10,000 | 10,000 | 9,000 |

- NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.
2. A buffer distance has been added to these radii of safety.

Figure 4.7c.

CONTINGENT EFFECTS Tables (continued) **Small Free Rocket**

FIRE AREAS (See note.)

| Yield
KT | HOB | Expected radii for ignition of wildland fuels during fire season—meters | | | | | | | |
|-------------|--------|---|----------|-----------|----------|---|----------|-----------|----------|
| | | Dry climate (25 percent relative humidity) | | | | Damp climate (75 percent relative humidity) | | | |
| | | Class I | Class II | Class III | Class IV | Class I | Class II | Class III | Class IV |
| ALFA/.5 | Air | 800 | 700 | 700 | 600 | 700 | 700 | 600 | 400 |
| | Impact | 500 | 500 | 400 | 400 | 500 | 500 | 400 | 400 |
| BRAVO/1 | Air | 1,100 | 1,000 | 900 | 700 | 1,000 | 1,000 | 800 | 600 |
| | Impact | 700 | 600 | 500 | 500 | 600 | 600 | 500 | 400 |
| CHARLIE/2 | Air | 1,400 | 1,300 | 1,000 | 800 | 1,300 | 1,300 | 1,100 | 800 |
| | Impact | 900 | 800 | 700 | 600 | 800 | 800 | 700 | 500 |
| DELTA/5 | Air | 2,000 | 1,800 | 1,700 | 1,400 | 1,800 | 1,800 | 1,500 | 1,100 |
| | Impact | 1,200 | 1,100 | 1,000 | 800 | 1,100 | 1,100 | 900 | 700 |
| ECHO/10 | Air | 2,600 | 2,400 | 2,200 | 1,800 | 2,400 | 2,400 | 2,100 | 1,500 |
| | Impact | 1,500 | 1,400 | 1,300 | 1,100 | 1,400 | 1,400 | 1,200 | 900 |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 4.7.d

CRATER DIMENSIONS (See note.)

| Yield
KT | Approx crater dimensions for various soil types—meters | | | | | | | |
|-------------|--|-------|---|-------|--|-------|---|-------|
| | Hard rock
(Granite and
sandstone) | | Soft rock
(dry soil or
soft rock) | | Saturated soil
(water slowly
fills crater) | | Saturated soil
(water rapidly
fills crater) | |
| | Radius | Depth | Radius | Depth | Radius | Depth | Radius | Depth |
| ALFA/.5 | 13 | 5 | 16 | 6 | 24 | 8 | 31 | 4 |
| BRAVO/1 | 16 | 6 | 20 | 7 | 30 | 10 | 39 | 5 |
| CHARLIE/2 | 20 | 6 | 25 | 8 | 37 | 12 | 50 | 6 |
| DELTA/5 | 27 | 8 | 34 | 10 | 50 | 15 | 67 | 7 |
| ECHO/10 | 34 | 10 | 42 | 12 | 63 | 18 | 84 | 8 |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 4.7e.

TACTICAL SYSTEM ACCURACY DATA **Small Free Rocket**

All distances in meters

| Range | Equivalent
CEP ¹ | Probable errors | | | Offset
distance
(d_o) | Range | Equivalent
CEP ¹ | Probable errors | | | Offset
distanc
(d_o) |
|--------|--------------------------------|-----------------|-----------------|-----------------|---------------------------------|--------|--------------------------------|-----------------|-----------------|-----------------|--------------------------------|
| | | PE _R | PE _d | PE _h | | | | PE _R | PE _d | PE _h | |
| 3,000 | 42 | 15 | 30 | 15 | 85 | 19,000 | 263 | 95 | 190 | 95 | 515 |
| 4,000 | 56 | 20 | 40 | 20 | 110 | 20,000 | 276 | 100 | 200 | 100 | 540 |
| 5,000 | 69 | 25 | 50 | 25 | 135 | 21,000 | 290 | 105 | 210 | 105 | 570 |
| 6,000 | 83 | 30 | 60 | 30 | 165 | 22,000 | 304 | 110 | 220 | 110 | 595 |
| 7,000 | 97 | 35 | 70 | 35 | 190 | 23,000 | 318 | 115 | 230 | 115 | 625 |
| 8,000 | 111 | 40 | 80 | 40 | 220 | 24,000 | 332 | 120 | 240 | 120 | 650 |
| 9,000 | 125 | 45 | 90 | 45 | 245 | 25,000 | 345 | 125 | 250 | 125 | 675 |
| 10,000 | 138 | 50 | 100 | 50 | 270 | | | | | | |
| 11,000 | 152 | 55 | 110 | 55 | 300 | | | | | | |
| 12,000 | 166 | 60 | 120 | 60 | 325 | | | | | | |
| 13,000 | 180 | 65 | 130 | 65 | 355 | | | | | | |
| 14,000 | 194 | 70 | 140 | 70 | 380 | | | | | | |
| 15,000 | 207 | 75 | 150 | 75 | 405 | | | | | | |
| 16,000 | 221 | 80 | 160 | 80 | 435 | | | | | | |
| 17,000 | 235 | 85 | 170 | 85 | 460 | | | | | | |
| 18,000 | 249 | 90 | 180 | 90 | 490 | | | | | | |

¹Equivalent CEP = $1.2345 (PE_R^2 + PE_d^2)^{1/2}$.

Figure 4.8.

¹Small Free Rocket.

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CHAPTER 5

LARGE FREE ROCKET

5.1 GENERAL

a. *Orientation.* This chapter contains employment data for the large free rocket with its associated warhead sections fired from a mobile launcher.

b. *Weapon characteristics.*

(1) *Yields.* The warhead sections for the large free rocket have yields of Delta/5 KT, Echo/10 KT, Foxtrot/20 KT, Golf/50 KT, and Hotel/100 KT.

(2) *Fuzing.* The fuzing for the large free rocket provides airburst and impact fuzing options. The airburst option is fuzed by time fuzes which are set for the desired time of flight by the delivery unit. Setting the fuze for airburst precludes the use of the impact fuzing system as a backup.

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The minimum and maximum ranges of the large free rocket are 7,000 meters and 40,000 meters.

(2) *Tactical system accuracy.* The horizontal and vertical dispersion errors for the large free rocket are dependent on range. Tactical system accuracy data are contained in figure 5.8.

(3) *Unit carrying capacity.* A large free rocket unit can draw, transport, and store at any one time a total of 20 complete rounds per battalion.

(4) *Response time.* The times shown below can be used as a basis for general tactical planning. They are considered to be applicable to a reasonably well-trained unit operating in daylight under favorable weather conditions. Blackout operations, unfavorable weather, enemy interference, equipment breakdown, or faulty test indications will extend the times listed. *For detailed tactical planning, the response times should be the actual times obtained from the artillery unit concerned.*

| Situation | Time (minutes) | Remarks |
|-----------------|----------------|---|
| I ¹ | 40 | For situation I, add 20 minutes if warhead section must be removed and a new warhead section with required yield mated to rocket. |
| II ² | 5 | |

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¹Situation (high readiness)—the complete round and launcher are in a firing position and survey is completed. Preliminary firing data for a specific target are *not* available. Prefire checkouts which can be performed prior to the receipt of a fire mission have been completed. (May be used to engage targets of opportunity within range.)

²Situation II (maximum readiness)—firing data for a specific target have been computed and applied to the weapon system. The unit is awaiting an order to fire. (Typical of readiness to engage on-call target.)

(5) *Special considerations.* The target analyst needs no special information from the unit fire direction center for target analysis. The fire mission to the unit includes, for an airburst, the desired height of burst in meters. For a contact surface burst, an impact option is requested.

EXPOSED Personnel Targets
Large Free Rocket

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|--|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | | Prompt | Delayed | | |
| 7,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,025 | 190 | 175 |
| 8,000 | 3,400 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 220 | 192 |
| 9,000 | 3,400 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | 245 | 210 |
| 10,000 | 3,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 1,000 | 270 | 227 |
| 11,000 | 3,400 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 725 | 975 | 300 | 245 |
| 12,000 | 3,500 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 700 | 975 | 325 | 262 |
| 13,000 | 3,500 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 975 | 355 | 280 |
| 14,000 | 3,500 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 675 | 950 | 380 | 297 |
| 15,000 | 3,500 | .7/.8 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 650 | 950 | 405 | 315 |
| 16,000 | 3,500 | .6/.8 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 625 | 925 | 435 | 332 |
| 17,000 | 3,500 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | | .7/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | 600 | 900 | 460 | 350 |
| 18,000 | 3,600 | .6/.8 | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 | | | 575 | 900 | 490 | 367 |
| 19,000 | 3,600 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .7/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 550 | 875 | 515 | 385 |
| 20,000 | 3,600 | .5/.7 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .7/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 525 | 850 | 540 | 402 |
| 21,000 | 3,600 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 500 | 850 | 570 | 420 |
| 22,000 | 3,600 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | 475 | 825 | 595 | 437 |
| 23,000 | 3,600 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | | | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | 425 | 800 | 625 | 455 |
| 24,000 | 3,700 | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .0/.2 | .0/.1 | | | .5/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | 375 | 775 | 650 | 472 |
| 25,000 | 3,700 | .2/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | | 325 | 750 | 675 | 490 |
| 26,000 | 3,700 | .1/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | | 250 | 725 | 705 | 507 |
| 27,000 | 3,700 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 | | | | 150 | 700 | 730 | 525 |
| 28,000 | 3,700 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 | | | | 0 | 675 | 760 | 542 |
| 29,000 | 3,700 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | .4/.7 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | | 0 | 625 | 785 | 560 |
| 30,000 | 3,800 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | | 0 | 600 | 810 | 577 |
| 31,000 | 3,800 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | | 0 | 550 | 840 | 595 |
| 32,000 | 3,800 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 500 | 865 | 612 |
| 33,000 | 3,800 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .2/.6 | .1/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 450 | 895 | 630 |
| 34,000 | 3,800 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .2/.5 | .1/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 375 | 920 | 647 |
| 35,000 | 3,800 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .1/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 325 | 945 | 665 |
| 36,000 | 3,900 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 200 | 975 | 682 |
| 37,000 | 3,900 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,000 | 700 |
| 38,000 | 3,900 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,030 | 717 |
| 39,000 | 3,900 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,055 | 735 |
| 40,000 | 3,900 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,080 | 752 |

Figure 5.1a(1).

EXPOSED Personnel Targets **Large Free Rocket**

DELTA/5 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 500 | 700 | 900 | 1,100 | 1,300 | 1,500 | 1,700 | 1,900 | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | Prompt | Delayed | | |
| 7,000 | 3,400 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 700 | 975 | 190 | 303 |
| 8,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 700 | 975 | 220 | 320 |
| 9,000 | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 675 | 950 | 245 | 338 |
| 10,000 | 3,400 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 650 | 950 | 270 | 355 |
| 11,000 | 3,400 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 625 | 925 | 300 | 373 |
| 12,000 | 3,400 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 625 | 925 | 325 | 390 |
| 13,000 | 3,500 | .7/.9 | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 | | 600 | 900 | 355 | 408 |
| 14,000 | 3,500 | .7/.9 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | 575 | 875 | 380 | 425 |
| 15,000 | 3,500 | .6/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.9 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | 550 | 875 | 405 | 443 |
| 16,000 | 3,500 | .6/.8 | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .4/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 500 | 850 | 435 | 460 |
| 17,000 | 3,500 | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .4/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 475 | 825 | 460 | 478 |
| 18,000 | 3,500 | .5/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 425 | 800 | 490 | 495 |
| 19,000 | 3,600 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 400 | 775 | 515 | 513 |
| 20,000 | 3,600 | .3/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | | .8/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.1 | | | 325 | 750 | 540 | 530 |
| 21,000 | 3,600 | .2/.6 | .2/.5 | .1/.3 | .0/.3 | .0/.2 | .0/.1 | | | .8/.9 | .5/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.1 | | | 275 | 725 | 570 | 548 |
| 22,000 | 3,600 | .1/.6 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | .8/.9 | .5/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 | | | 175 | 700 | 595 | 565 |
| 23,000 | 3,600 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 | | | 0 | 675 | 625 | 583 |
| 24,000 | 3,600 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .7/.9 | .4/.7 | .3/.4 | .1/.3 | .1/.2 | .0/.1 | | | 0 | 650 | 650 | 600 |
| 25,000 | 3,700 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | .6/.9 | .4/.7 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 600 | 675 | 618 |
| 26,000 | 3,700 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 550 | 705 | 635 |
| 27,000 | 3,700 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.8 | .3/.6 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 525 | 730 | 653 |
| 28,000 | 3,700 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.8 | .3/.6 | .1/.4 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 475 | 760 | 670 |
| 29,000 | 3,700 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | .3/.7 | .2/.6 | .1/.4 | .0/.2 | .0/.1 | | | | 0 | 400 | 785 | 688 |
| 30,000 | 3,700 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .2/.7 | .2/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 325 | 810 | 705 |
| 31,000 | 3,800 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .1/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 250 | 840 | 723 |
| 32,000 | 3,800 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 50 | 865 | 740 |
| 33,000 | 3,800 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 895 | 758 |
| 34,000 | 3,800 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 920 | 775 |
| 35,000 | 3,800 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 945 | 793 |
| 36,000 | 3,800 | .0/.2 | .0/.1 | | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 975 | 810 |
| 37,000 | 3,900 | .0/.2 | .0/.1 | | | | | | | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,000 | 828 |
| 38,000 | 3,900 | .0/.2 | | | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,030 | 845 |
| 39,000 | 3,900 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,055 | 863 |
| 40,000 | 3,900 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,080 | 880 |

LFR 1

Figure 5.1a(2).

EXPOSED Personnel Targets
Large Free Rocket

IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | Prompt | Delayed | | |
| 7,000 | 2,200 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 190 | 0 |
| 8,000 | 2,200 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 220 | 0 |
| 9,000 | 2,200 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 245 | 0 |
| 10,000 | 2,300 | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 270 | 0 |
| 11,000 | 2,300 | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 300 | 0 |
| 12,000 | 2,300 | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 325 | 0 |
| 13,000 | 2,300 | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 355 | 0 |
| 14,000 | 2,300 | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 380 | 0 |
| 15,000 | 2,300 | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 405 | 0 |
| 16,000 | 2,400 | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 435 | 0 |
| 17,000 | 2,400 | .7/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 460 | 0 |
| 18,000 | 2,400 | .7/.9 | .6/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 490 | 0 |
| 19,000 | 2,400 | .7/.9 | .6/.8 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 515 | 0 |
| 20,000 | 2,400 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 540 | 0 |
| 21,000 | 2,400 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 570 | 0 |
| 22,000 | 2,500 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 595 | 0 |
| 23,000 | 2,500 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 625 | 0 |
| 24,000 | 2,500 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 650 | 0 |
| 25,000 | 2,500 | .5/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 675 | 0 |
| 26,000 | 2,500 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 705 | 0 |
| 27,000 | 2,600 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 730 | 0 |
| 28,000 | 2,600 | .5/.8 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 760 | 0 |
| 29,000 | 2,600 | .4/.8 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 785 | 0 |
| 30,000 | 2,600 | .4/.8 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 810 | 0 |
| 31,000 | 2,600 | .4/.8 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 840 | 0 |
| 32,000 | 2,600 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 865 | 0 |
| 33,000 | 2,700 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 895 | 0 |
| 34,000 | 2,700 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 920 | 0 |
| 35,000 | 2,700 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 945 | 0 |
| 36,000 | 2,700 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 975 | 0 |
| 37,000 | 2,700 | .3/.6 | .3/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 1,000 | 0 |
| 38,000 | 2,700 | .2/.6 | .3/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.8 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 1,030 | 0 |
| 39,000 | 2,800 | .2/.6 | .3/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.8 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 1,055 | 0 |
| 40,000 | 2,800 | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .5/.8 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,050 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.1a(3).

EXPOSED Personnel Targets
Large Free Rocket

ECHO/10 KT

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|-----|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | Prompt | Delayed | | | |
| 7,000 | 4,200 | .9/.9 | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,150 | 190 | 188 |
| 8,000 | 4,200 | .9/.9 | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,125 | 220 | 205 |
| 9,000 | 4,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,125 | 245 | 223 |
| 10,000 | 4,300 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,125 | 270 | 240 |
| 11,000 | 4,300 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,125 | 300 | 258 |
| 12,000 | 4,300 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,100 | 325 | 275 |
| 13,000 | 4,300 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 850 | 1,100 | 355 | 293 |
| 14,000 | 4,300 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 850 | 1,075 | 380 | 310 |
| 15,000 | 4,300 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 850 | 1,075 | 405 | 328 |
| 16,000 | 4,300 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 825 | 1,050 | 435 | 345 |
| 17,000 | 4,400 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 725 | 1,050 | 460 | 363 |
| 18,000 | 4,400 | .7/.9 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 700 | 1,025 | 490 | 380 |
| 19,000 | 4,400 | .7/.9 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 675 | 1,025 | 515 | 398 |
| 20,000 | 4,400 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 650 | 1,000 | 540 | 415 |
| 21,000 | 4,400 | .6/.8 | .5/.7 | .3/.6 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 625 | 975 | 570 | 433 |
| 22,000 | 4,500 | .5/.8 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 600 | 975 | 595 | 450 |
| 23,000 | 4,500 | .5/.8 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 575 | 950 | 625 | 468 |
| 24,000 | 4,500 | .4/.7 | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 550 | 925 | 650 | 485 |
| 25,000 | 4,500 | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 500 | 900 | 675 | 503 |
| 26,000 | 4,500 | .3/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | .6/.8 | .4/.6 | .3/.4 | .1/.3 | .1/.2 | .0/.1 | | | 450 | 875 | 705 | 520 |
| 27,000 | 4,500 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 425 | 850 | 730 | 538 |
| 28,000 | 4,600 | .2/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 350 | 825 | 760 | 555 |
| 29,000 | 4,600 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 275 | 800 | 785 | 573 |
| 30,000 | 4,600 | .1/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .5/.8 | .3/.5 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 200 | 775 | 810 | 590 |
| 31,000 | 4,600 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .4/.7 | .3/.5 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 750 | 840 | 608 |
| 32,000 | 4,600 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 700 | 865 | 625 |
| 33,000 | 4,600 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 675 | 895 | 643 |
| 34,000 | 4,700 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .3/.7 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 625 | 920 | 660 |
| 35,000 | 4,700 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .3/.6 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 600 | 945 | 678 |
| 36,000 | 4,700 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .2/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | | 0 | 550 | 975 | 695 |
| 37,000 | 4,700 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 475 | 1,000 | 713 |
| 38,000 | 4,700 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 425 | 1,030 | 730 |
| 39,000 | 4,700 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 350 | 1,055 | 748 |
| 40,000 | 4,800 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 250 | 1,080 | 765 |

LFR 1

Figure 5.1b(1).

¹Large Free Rocket.

EXPOSED Personnel Targets **Large Free Rocket**

HIGH Airburst

Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | Prompt | Delayed | | |
| 7,000 | 4,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,100 | 190 | 350 |
| 8,000 | 4,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,075 | 220 | 367 |
| 9,000 | 4,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 850 | 1,075 | 245 | 385 |
| 10,000 | 4,200 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 825 | 1,050 | 270 | 402 |
| 11,000 | 4,300 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 725 | 1,050 | 300 | 420 |
| 12,000 | 4,300 | .8/.9 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 700 | 1,025 | 325 | 437 |
| 13,000 | 4,300 | .8/.9 | .6/.8 | .4/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 675 | 1,025 | 355 | 455 |
| 14,000 | 4,300 | .7/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 650 | 1,000 | 380 | 472 |
| 15,000 | 4,300 | .7/.9 | .5/.7 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 625 | 975 | 405 | 490 |
| 16,000 | 4,300 | .6/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 600 | 975 | 435 | 507 |
| 17,000 | 4,400 | .6/.8 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 575 | 950 | 460 | 525 |
| 18,000 | 4,400 | .5/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 550 | 925 | 490 | 542 |
| 19,000 | 4,400 | .5/.8 | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 500 | 900 | 515 | 560 |
| 20,000 | 4,400 | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .1/.3 | .1/.2 | .0/.1 | | 450 | 875 | 540 | 577 |
| 21,000 | 4,400 | .3/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .9/.9 | .7/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | 425 | 850 | 570 | 595 |
| 22,000 | 4,400 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | .9/.9 | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | 350 | 825 | 595 | 612 |
| 23,000 | 4,500 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | 275 | 800 | 625 | 630 |
| 24,000 | 4,500 | .1/.6 | .1/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | .8/.9 | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | 200 | 775 | 650 | 647 |
| 25,000 | 4,500 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .8/.9 | .5/.8 | .3/.5 | .2/.3 | .1/.2 | .0/.2 | .0/.1 | | 0 | 750 | 675 | 665 |
| 26,000 | 4,500 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.2 | .0/.1 | | 0 | 700 | 705 | 682 |
| 27,000 | 4,500 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .6/.9 | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 0 | 675 | 730 | 700 |
| 28,000 | 4,500 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | .6/.8 | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 | | | 0 | 625 | 760 | 717 |
| 29,000 | 4,600 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .5/.8 | .4/.7 | .3/.5 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 600 | 785 | 735 |
| 30,000 | 4,600 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.8 | .3/.6 | .2/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 550 | 810 | 752 |
| 31,000 | 4,600 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .3/.7 | .3/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 475 | 840 | 770 |
| 32,000 | 4,600 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | .2/.7 | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 425 | 865 | 787 |
| 33,000 | 4,600 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .2/.7 | .2/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 350 | 895 | 805 |
| 34,000 | 4,700 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .1/.7 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 250 | 920 | 822 |
| 35,000 | 4,700 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.6 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 945 | 840 |
| 36,000 | 4,700 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 975 | 857 |
| 37,000 | 4,700 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,000 | 875 |
| 38,000 | 4,700 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,030 | 892 |
| 39,000 | 4,700 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,055 | 910 |
| 40,000 | 4,800 | .0/.2 | .0/.1 | | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,080 | 927 |

Figure 5.1b(2).

**EXPOSED Personnel Targets
Large Free Rocket**

ECHO/10 KT

**IMPACT Burst
Produces fallout**

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | Prompt | Delayed | | |
| 7,000 | 2,700 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 190 | 0 |
| 8,000 | 2,700 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 220 | 0 |
| 9,000 | 2,800 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 245 | 0 |
| 10,000 | 2,800 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 270 | 0 |
| 11,000 | 2,800 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 300 | 0 |
| 12,000 | 2,800 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 325 | 0 |
| 13,000 | 2,800 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 355 | 0 |
| 14,000 | 2,900 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 380 | 0 |
| 15,000 | 2,900 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 405 | 0 |
| 16,000 | 2,900 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 435 | 0 |
| 17,000 | 2,900 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 460 | 0 |
| 18,000 | 2,900 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 490 | 0 |
| 19,000 | 2,900 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 515 | 0 |
| 20,000 | 3,000 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 540 | 0 |
| 21,000 | 3,000 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 570 | 0 |
| 22,000 | 3,000 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 595 | 0 |
| 23,000 | 3,000 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 625 | 0 |
| 24,000 | 3,000 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 650 | 0 |
| 25,000 | 3,000 | .5/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 675 | 0 |
| 26,000 | 3,100 | .5/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 705 | 0 |
| 27,000 | 3,100 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 730 | 0 |
| 28,000 | 3,100 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 760 | 0 |
| 29,000 | 3,100 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 785 | 0 |
| 30,000 | 3,100 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 810 | 0 |
| 31,000 | 3,200 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 840 | 0 |
| 32,000 | 3,200 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 865 | 0 |
| 33,000 | 3,200 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 895 | 0 |
| 34,000 | 3,200 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 920 | 0 |
| 35,000 | 3,200 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 945 | 0 |
| 36,000 | 3,200 | .4/.7 | .3/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 975 | 0 |
| 37,000 | 3,300 | .4/.6 | .3/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 1,000 | 0 |
| 38,000 | 3,300 | .3/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .6/.8 | .4/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 1,030 | 0 |
| 39,000 | 3,300 | .3/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 1,055 | 0 |
| 40,000 | 3,300 | .3/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.9 | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.1b(3).

LFR 1

¹Large Free Rocket.

EXPOSED
TARGETS

EXPOSED Personnel Targets

Large Free Rocket

LOW Airburst

Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | Prompt | Delayed | | |
| 7,000 | 6,000 | .9/.9 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 190 | 205 |
| 8,000 | 6,000 | .9/.9 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 220 | 222 |
| 9,000 | 6,100 | .9/.9 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,225 | 245 | 240 |
| 10,000 | 6,100 | .9/.9 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 270 | 257 |
| 11,000 | 6,100 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 300 | 275 |
| 12,000 | 6,100 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,200 | 325 | 292 |
| 13,000 | 6,100 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125 | 1,175 | 355 | 310 |
| 14,000 | 6,100 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 380 | 327 |
| 15,000 | 6,200 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | 405 | 345 |
| 16,000 | 6,200 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,150 | 435 | 362 |
| 17,000 | 6,200 | .8/.9 | .7/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,125 | 1,150 | 460 | 380 |
| 18,000 | 6,200 | .8/.9 | .7/.8 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .9/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,125 | 1,150 | 490 | 397 |
| 19,000 | 6,200 | .8/.9 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .8/.9 | .6/.8 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,125 | 1,125 | 515 | 415 |
| 20,000 | 6,200 | .8/.9 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .8/.9 | .6/.8 | .4/.5 | .2/.4 | .2/.2 | .1/.2 | .1/.1 | | 1,100 | 1,100 | 540 | 432 |
| 21,000 | 6,300 | .7/.9 | .6/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 1,000 | 1,075 | 570 | 450 |
| 22,000 | 6,300 | .7/.9 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 725 | 1,075 | 595 | 467 |
| 23,000 | 6,300 | .6/.9 | .4/.8 | .3/.7 | .2/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 700 | 1,050 | 625 | 485 |
| 24,000 | 6,300 | .5/.8 | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 675 | 1,025 | 650 | 502 |
| 25,000 | 6,300 | .5/.8 | .3/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 650 | 1,000 | 675 | 520 |
| 26,000 | 6,300 | .4/.8 | .3/.7 | .2/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 625 | 975 | 705 | 537 |
| 27,000 | 6,400 | .4/.7 | .2/.7 | .2/.6 | .1/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 575 | 975 | 730 | 555 |
| 28,000 | 6,400 | .3/.7 | .2/.6 | .2/.5 | .1/.4 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .6/.8 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 525 | 950 | 760 | 572 |
| 29,000 | 6,400 | .3/.7 | .2/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 500 | 925 | 785 | 590 |
| 30,000 | 6,400 | .2/.6 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .6/.8 | .4/.6 | .3/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | 450 | 900 | 810 | 607 |
| 31,000 | 6,400 | .2/.6 | .2/.5 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 375 | 850 | 840 | 625 |
| 32,000 | 6,400 | .1/.6 | .1/.5 | .1/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 300 | 825 | 865 | 642 |
| 33,000 | 6,500 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 200 | 800 | 895 | 660 |
| 34,000 | 6,500 | .0/.5 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 0 | 775 | 920 | 677 |
| 35,000 | 6,500 | .0/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 725 | 945 | 695 |
| 36,000 | 6,500 | .0/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .4/.7 | .3/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 700 | 975 | 712 |
| 37,000 | 6,500 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .3/.7 | .2/.5 | .1/.4 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 650 | 1,000 | 730 |
| 38,000 | 6,600 | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .3/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 600 | 1,030 | 747 |
| 39,000 | 6,600 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | .2/.6 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 550 | 1,055 | 765 |
| 40,000 | 6,600 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | .2/.6 | .2/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 475 | 1,080 | 782 |

Figure 5.1c(1).

EXPOSED Personnel Targets Large Free Rocket

FOXTROT/20 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|-------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | | | |
| 7,000 | 5,900 | .9/.9 | .9/.9 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 1,150 | 1,175 | 190 | 409 |
| 8,000 | 6,000 | .9/.9 | .9/.9 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 1,150 | 1,150 | 220 | 426 |
| 9,000 | 6,000 | .9/.9 | .9/.9 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 1,150 | 1,150 | 245 | 444 |
| 10,000 | 6,000 | .9/.9 | .9/.9 | .8/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 1,125 | 1,125 | 270 | 461 |
| 11,000 | 6,000 | .9/.9 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 1,125 | 1,125 | 300 | 479 |
| 12,000 | 6,000 | .9/.9 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,125 | 1,125 | 325 | 496 |
| 13,000 | 6,000 | .9/.9 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,075 | 1,075 | 355 | 514 |
| 14,000 | 6,100 | .9/.9 | .8/.9 | .7/.8 | .6/.7 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 825 | 1,075 | 380 | 531 |
| 15,000 | 6,100 | .8/.9 | .7/.9 | .5/.8 | .3/.7 | .5/.6 | .2/.4 | .1/.4 | .1/.3 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 725 | 1,050 | 405 | 549 |
| 16,000 | 6,100 | .8/.9 | .6/.9 | .4/.8 | .3/.7 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 700 | 1,025 | 435 | 566 |
| 17,000 | 6,100 | .7/.9 | .5/.8 | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 650 | 1,025 | 460 | 584 |
| 18,000 | 6,100 | .7/.9 | .5/.8 | .4/.7 | .2/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 625 | 1,000 | 490 | 601 |
| 19,000 | 6,200 | .6/.9 | .4/.8 | .3/.7 | .2/.6 | .1/.5 | .1/.4 | .1/.3 | .0/.2 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 600 | 975 | 515 | 619 |
| 20,000 | 6,200 | .5/.8 | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 550 | 950 | 540 | 636 |
| 21,000 | 6,200 | .5/.8 | .3/.7 | .2/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 525 | 925 | 570 | 654 |
| 22,000 | 6,200 | .4/.8 | .3/.7 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .7/.9 | .5/.6 | .3/.4 | .1/.3 | .1/.2 | .1/.1 | | 475 | 900 | 595 | 671 |
| 23,000 | 6,200 | .3/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .7/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | 400 | 875 | 625 | 689 |
| 24,000 | 6,200 | .3/.7 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | 350 | 850 | 650 | 706 |
| 25,000 | 6,300 | .2/.7 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | 250 | 825 | 675 | 724 |
| 26,000 | 6,300 | .1/.6 | .1/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | 125 | 775 | 705 | 741 |
| 27,000 | 6,300 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .5/.8 | .3/.6 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | 0 | 750 | 730 | 759 |
| 28,000 | 6,300 | .0/.5 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .5/.7 | .3/.5 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | 0 | 700 | 760 | 776 |
| 29,000 | 6,300 | .0/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 0 | 675 | 785 | 794 |
| 30,000 | 6,300 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .4/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 625 | 810 | 811 |
| 31,000 | 6,400 | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .3/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 575 | 840 | 829 |
| 32,000 | 6,400 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | .3/.6 | .2/.5 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 525 | 865 | 846 |
| 33,000 | 6,400 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 450 | 895 | 864 |
| 34,000 | 6,500 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .2/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 375 | 920 | 881 |
| 35,000 | 6,500 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 275 | 945 | 899 |
| 36,000 | 6,500 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 75 | 975 | 916 |
| 37,000 | 6,500 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 0 | 1,000 | 934 |
| 38,000 | 6,500 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 1,030 | 951 |
| 39,000 | 6,600 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 1,055 | 969 |
| 40,000 | 6,600 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 1,080 | 986 |

Figure 5.1c(2).

¹Large Free Rocket.

EXPOSED Personnel Targets
Large Free Rocket

IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | Prompt | Delayed | | |
| 7,000 | 3,600 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 190 | 0 |
| 8,000 | 3,600 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 220 | 0 |
| 9,000 | 3,600 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 245 | 0 |
| 10,000 | 3,600 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 270 | 0 |
| 11,000 | 3,600 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 300 | 0 |
| 12,000 | 3,600 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 325 | 0 |
| 13,000 | 3,700 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 355 | 0 |
| 14,000 | 3,700 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 380 | 0 |
| 15,000 | 3,700 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 405 | 0 |
| 16,000 | 3,700 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 435 | 0 |
| 17,000 | 3,700 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 460 | 0 |
| 18,000 | 3,700 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 490 | 0 |
| 19,000 | 3,800 | .7/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 515 | 0 |
| 20,000 | 3,800 | .7/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 540 | 0 |
| 21,000 | 3,800 | .7/.9 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 570 | 0 |
| 22,000 | 3,800 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 595 | 0 |
| 23,000 | 3,800 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 625 | 0 |
| 24,000 | 3,900 | .6/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 650 | 0 |
| 25,000 | 3,900 | .6/.8 | .5/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 675 | 0 |
| 26,000 | 3,900 | .6/.8 | .5/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 705 | 0 |
| 27,000 | 3,900 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 730 | 0 |
| 28,000 | 3,900 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 760 | 0 |
| 29,000 | 3,900 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 785 | 0 |
| 30,000 | 4,000 | .5/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 810 | 0 |
| 31,000 | 4,000 | .5/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 840 | 0 |
| 32,000 | 4,000 | .5/.8 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .7/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 865 | 0 |
| 33,000 | 4,000 | .5/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 895 | 0 |
| 34,000 | 4,000 | .5/.7 | .4/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 920 | 0 |
| 35,000 | 4,000 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 945 | 0 |
| 36,000 | 4,100 | .4/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .6/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 975 | 0 |
| 37,000 | 4,100 | .4/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .6/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 1,000 | 0 |
| 38,000 | 4,100 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 1,030 | 0 |
| 39,000 | 4,100 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 1,055 | 0 |
| 40,000 | 4,100 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.1c(3).

EXPOSED Personnel Targets

Large Free Rocket

LOW Airburst
Precludes fallout

GOLF/50 KT

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d ₀
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | Prompt | Delayed | | |
| 7,000 | 8,900 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 1,600 | 1,600 | 190 | 234 |
| 8,000 | 8,900 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .3/.3 | .1/.2 | .1/.2 | 1,600 | 1,600 | 220 | 251 |
| 9,000 | 8,900 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,600 | 1,600 | 245 | 269 |
| 10,000 | 8,900 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,600 | 1,600 | 270 | 286 |
| 11,000 | 8,900 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 300 | 304 |
| 12,000 | 8,900 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 325 | 321 |
| 13,000 | 9,000 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.1 | 1,625 | 1,625 | 355 | 339 |
| 14,000 | 9,000 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 380 | 356 |
| 15,000 | 9,000 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 405 | 374 |
| 16,000 | 9,000 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 435 | 391 |
| 17,000 | 9,000 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 460 | 409 |
| 18,000 | 9,000 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 490 | 426 |
| 19,000 | 9,100 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 515 | 444 |
| 20,000 | 9,100 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 540 | 461 |
| 21,000 | 9,100 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 570 | 479 |
| 22,000 | 9,100 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 595 | 496 |
| 23,000 | 9,100 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 625 | 514 |
| 24,000 | 9,100 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 650 | 531 |
| 25,000 | 9,200 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 675 | 549 |
| 26,000 | 9,200 | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .3/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .3/.3 | .1/.2 | .1/.2 | 1,600 | 1,600 | 705 | 566 |
| 27,000 | 9,200 | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 1,600 | 1,600 | 730 | 584 |
| 28,000 | 9,200 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 1,525 | 1,525 | 760 | 601 |
| 29,000 | 9,200 | .7/.8 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .7/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 1,325 | 1,325 | 785 | 619 |
| 30,000 | 9,300 | .3/.8 | .2/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .7/.9 | .5/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | 750 | 1,150 | 810 | 636 |
| 31,000 | 9,300 | .3/.8 | .1/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .7/.9 | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | 700 | 1,125 | 840 | 654 |
| 32,000 | 9,300 | .3/.8 | .1/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .6/.8 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 675 | 1,125 | 865 | 671 |
| 33,000 | 9,300 | .2/.8 | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .6/.8 | .4/.7 | .2/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.2 | 625 | 1,100 | 895 | 689 |
| 34,000 | 9,300 | .2/.7 | .1/.6 | .0/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .6/.8 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.2 | 575 | 1,075 | 920 | 706 |
| 35,000 | 9,300 | .1/.7 | .1/.6 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .5/.8 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 525 | 1,025 | 945 | 724 |
| 36,000 | 9,400 | .1/.7 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .5/.8 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 475 | 1,000 | 975 | 741 |
| 37,000 | 9,400 | .1/.7 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .5/.8 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 400 | 975 | 1,000 | 759 |
| 38,000 | 9,400 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 325 | 950 | 1,030 | 776 |
| 39,000 | 9,400 | .0/.6 | .0/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 200 | 925 | 1,055 | 794 |
| 40,000 | 9,400 | .0/.6 | .0/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .4/.7 | .3/.6 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 875 | 1,080 | 811 |

LFR 1

Figure 5.1d(1).

¹Large Free Rocket.

EXPOSED Personnel Targets
Large Free Rocket

HIGH Airburst

Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | Prompt | Delayed | | |
| 7,000 | 8,800 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 190 | 510 |
| 8,000 | 8,900 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 220 | 527 |
| 9,000 | 8,900 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 245 | 545 |
| 10,000 | 8,900 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 270 | 562 |
| 11,000 | 8,900 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 300 | 580 |
| 12,000 | 8,900 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 325 | 597 |
| 13,000 | 8,900 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,650 | 1,650 | 355 | 615 |
| 14,000 | 9,000 | .9/.8 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 380 | 632 |
| 15,000 | 9,000 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,625 | 1,625 | 405 | 650 |
| 16,000 | 9,000 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,600 | 1,600 | 435 | 667 |
| 17,000 | 9,000 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 1,575 | 1,575 | 460 | 685 |
| 18,000 | 9,000 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 1,475 | 1,475 | 490 | 702 |
| 19,000 | 9,000 | .8/.9 | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .0/.2 | 1,200 | 1,200 | 515 | 720 |
| 20,000 | 9,100 | .3/.9 | .2/.7 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .7/.9 | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 725 | 1,150 | 540 | 737 |
| 21,000 | 9,100 | .3/.8 | .1/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .7/.9 | .4/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 700 | 1,125 | 570 | 755 |
| 22,000 | 9,100 | .2/.8 | .1/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .6/.9 | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 650 | 1,100 | 595 | 772 |
| 23,000 | 9,100 | .2/.8 | .1/.6 | .0/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .6/.9 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 625 | 1,075 | 625 | 790 |
| 24,000 | 9,100 | .2/.7 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .6/.8 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 575 | 1,050 | 650 | 807 |
| 25,000 | 9,200 | .1/.7 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .6/.8 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 525 | 1,025 | 675 | 825 |
| 26,000 | 9,200 | .1/.7 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .5/.8 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 450 | 1,000 | 705 | 842 |
| 27,000 | 9,200 | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .5/.8 | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 375 | 975 | 730 | 860 |
| 28,000 | 9,200 | .0/.6 | .0/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | .5/.8 | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 300 | 950 | 760 | 877 |
| 29,000 | 9,200 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .5/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 150 | 900 | 785 | 895 |
| 30,000 | 9,200 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .4/.7 | .3/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 875 | 810 | 912 |
| 31,000 | 9,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 825 | 840 | 930 |
| 32,000 | 9,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 800 | 865 | 947 |
| 33,000 | 9,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .3/.7 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 750 | 895 | 965 |
| 34,000 | 9,300 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | .3/.6 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 700 | 920 | 982 |
| 35,000 | 9,300 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | .3/.6 | .1/.5 | .1/.3 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 650 | 945 | 1,000 |
| 36,000 | 9,300 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .2/.6 | .1/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 575 | 975 | 1,017 |
| 37,000 | 9,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 525 | 1,000 | 1,035 |
| 38,000 | 9,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 450 | 1,030 | 1,052 |
| 39,000 | 9,400 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 350 | 1,055 | 1,070 |
| 40,000 | 9,400 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 200 | 1,080 | 1,087 |

Figure 5.1d(2).

**EXPOSED Personnel Targets
Large Free Rocket**

GOLF/50 KT

**IMPACT Burst
Produces fallout**

| Range

(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
<i>In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage.</i> | | | | | | | | | | | | | | | | Probable
minimum
R _D

(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-----------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | Prompt | Delayed | | |
| 7,000 | 5,000 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 190 | 0 |
| 8,000 | 5,000 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 220 | 0 |
| 9,000 | 5,100 | .9/.9 | .8/.9 | .6/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 245 | 0 |
| 10,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 270 | 0 |
| 11,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 300 | 0 |
| 12,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 325 | 0 |
| 13,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 355 | 0 |
| 14,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 380 | 0 |
| 15,000 | 5,200 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 405 | 0 |
| 16,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 435 | 0 |
| 17,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 460 | 0 |
| 18,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 490 | 0 |
| 19,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 515 | 0 |
| 20,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 540 | 0 |
| 21,000 | 5,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 570 | 0 |
| 22,000 | 5,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 595 | 0 |
| 23,000 | 5,300 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 625 | 0 |
| 24,000 | 5,300 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 650 | 0 |
| 25,000 | 5,300 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 675 | 0 |
| 26,000 | 5,300 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 705 | 0 |
| 27,000 | 5,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 730 | 0 |
| 28,000 | 5,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 760 | 0 |
| 29,000 | 5,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 785 | 0 |
| 30,000 | 5,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 810 | 0 |
| 31,000 | 5,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 840 | 0 |
| 32,000 | 5,500 | .7/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 865 | 0 |
| 33,000 | 5,500 | .7/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 895 | 0 |
| 34,000 | 5,500 | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 920 | 0 |
| 35,000 | 5,500 | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 945 | 0 |
| 36,000 | 5,500 | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 975 | 0 |
| 37,000 | 5,500 | .6/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 1,000 | 0 |
| 38,000 | 5,600 | .6/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 1,030 | 0 |
| 39,000 | 5,600 | .6/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 1,055 | 0 |
| 40,000 | 5,600 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,300 | 1,475 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.1d(3).

LFR 1

¹Large Free Rocket.

EXPOSED Personnel Targets **Large Free Rocket**

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200 | Prompt | Delayed | | |
| 7,000 | 11,300 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,075 | 2,075 | 190 | 263 |
| 8,000 | 11,600 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,100 | 2,100 | 220 | 280 |
| 9,000 | 11,600 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,100 | 2,100 | 245 | 298 |
| 10,000 | 11,600 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,100 | 2,100 | 270 | 315 |
| 11,000 | 11,600 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 300 | 333 |
| 12,000 | 11,700 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 325 | 350 |
| 13,000 | 11,700 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 355 | 368 |
| 14,000 | 11,700 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 380 | 385 |
| 15,000 | 11,700 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 405 | 403 |
| 16,000 | 11,700 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,150 | 2,150 | 435 | 420 |
| 17,000 | 11,700 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,150 | 2,150 | 460 | 438 |
| 18,000 | 11,800 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,150 | 2,150 | 490 | 455 |
| 19,000 | 11,800 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,150 | 2,150 | 515 | 473 |
| 20,000 | 11,800 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,150 | 2,150 | 540 | 490 |
| 21,000 | 11,800 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,150 | 2,150 | 570 | 508 |
| 22,000 | 11,800 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 595 | 525 |
| 23,000 | 11,800 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 625 | 543 |
| 24,000 | 11,900 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 650 | 560 |
| 25,000 | 11,900 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 675 | 578 |
| 26,000 | 11,900 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 705 | 595 |
| 27,000 | 11,900 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 730 | 613 |
| 28,000 | 11,900 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,175 | 2,175 | 760 | 630 |
| 29,000 | 12,000 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,175 | 2,175 | 785 | 648 |
| 30,000 | 12,000 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,150 | 2,150 | 810 | 665 |
| 31,000 | 12,000 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,150 | 2,150 | 840 | 683 |
| 32,000 | 12,000 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 865 | 700 |
| 33,000 | 12,000 | .6/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 895 | 718 |
| 34,000 | 12,000 | .6/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,100 | 2,100 | 920 | 735 |
| 35,000 | 12,100 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.5 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,025 | 2,025 | 945 | 753 |
| 36,000 | 12,100 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 1,875 | 1,875 | 975 | 770 |
| 37,000 | 12,100 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .2/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 950 | 1,200 | 1,000 | 788 |
| 38,000 | 12,100 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .2/.6 | .1/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 675 | 1,175 | 1,030 | 805 |
| 39,000 | 12,100 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .2/.6 | .1/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 625 | 1,150 | 1,055 | 823 |
| 40,000 | 12,100 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 575 | 1,125 | 1,080 | 840 |

Figure 5.1e(1).

EXPOSED Personnel Targets **Large Free Rocket**

HOTEL/100 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
$U_{nW} E_x$)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200 | Prompt | Delayed | | |
| 7,000 | 11,600 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 190 | 611 |
| 8,000 | 11,600 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 220 | 628 |
| 9,000 | 11,600 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 245 | 646 |
| 10,000 | 11,600 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 270 | 663 |
| 11,000 | 11,600 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 300 | 681 |
| 12,000 | 11,600 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 325 | 698 |
| 13,000 | 11,700 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 355 | 716 |
| 14,000 | 11,700 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 380 | 733 |
| 15,000 | 11,700 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 405 | 751 |
| 16,000 | 11,700 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,175 | 2,175 | 435 | 768 |
| 17,000 | 11,700 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,150 | 2,150 | 460 | 786 |
| 18,000 | 11,700 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,150 | 2,150 | 490 | 803 |
| 19,000 | 11,800 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 515 | 821 |
| 20,000 | 11,800 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 540 | 838 |
| 21,000 | 11,800 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,100 | 2,100 | 570 | 856 |
| 22,000 | 11,800 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,050 | 2,050 | 595 | 873 |
| 23,000 | 11,800 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 1,900 | 1,900 | 625 | 891 |
| 24,000 | 11,800 | .3/.7 | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .0/.2 | .0/.2 | 1,475 | 1,475 | 650 | 908 |
| 25,000 | 11,900 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .2/.7 | .1/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 675 | 1,175 | 675 | 926 |
| 26,000 | 11,900 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .2/.6 | .1/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 625 | 1,150 | 705 | 943 |
| 27,000 | 11,900 | .0/.6 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 575 | 1,125 | 730 | 961 |
| 28,000 | 11,900 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 500 | 1,100 | 760 | 978 |
| 29,000 | 11,900 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | .1/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 450 | 1,075 | 785 | 996 |
| 30,000 | 12,000 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | .1/.6 | .1/.4 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 350 | 1,025 | 810 | 1,013 |
| 31,000 | 12,000 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 225 | 1,000 | 840 | 1,031 |
| 32,000 | 12,000 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 975 | 865 | 1,048 |
| 33,000 | 12,000 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 925 | 895 | 1,066 |
| 34,000 | 12,000 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 875 | 920 | 1,083 |
| 35,000 | 12,000 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .1/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 850 | 945 | 1,101 |
| 36,000 | 12,100 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 800 | 975 | 1,118 |
| 37,000 | 12,100 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 750 | 1,000 | 1,136 |
| 38,000 | 12,100 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 675 | 1,030 | 1,153 |
| 39,000 | 12,100 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 625 | 1,055 | 1,171 |
| 40,000 | 12,100 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 550 | 1,080 | 1,188 |

Figure 5.1e(2).

¹Large Free Rocket.

EXPOSED Personnel Targets
Large Free Rocket

IMPACT Burst
Produces fallout

| Range

(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED

In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D

(meters) | | Offset
distance
d _o

(meters) | Height
of
burst

(meters) |
|-----------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|---------------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | Prompt | Delayed | | |
| 7,000 | 6,600 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 190 | 0 |
| 8,000 | 6,600 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 220 | 0 |
| 9,000 | 6,600 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 245 | 0 |
| 10,000 | 6,600 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 270 | 0 |
| 11,000 | 6,600 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 300 | 0 |
| 12,000 | 6,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 325 | 0 |
| 13,000 | 6,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 355 | 0 |
| 14,000 | 6,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 380 | 0 |
| 15,000 | 6,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 405 | 0 |
| 16,000 | 6,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 435 | 0 |
| 17,000 | 6,700 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 460 | 0 |
| 18,000 | 6,800 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 490 | 0 |
| 19,000 | 6,800 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 515 | 0 |
| 20,000 | 6,800 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 540 | 0 |
| 21,000 | 6,800 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 570 | 0 |
| 22,000 | 6,800 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 595 | 0 |
| 23,000 | 6,900 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 625 | 0 |
| 24,000 | 6,900 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 650 | 0 |
| 25,000 | 6,900 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 675 | 0 |
| 26,000 | 6,900 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 705 | 0 |
| 27,000 | 6,900 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 730 | 0 |
| 28,000 | 6,900 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 760 | 0 |
| 29,000 | 7,000 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 785 | 0 |
| 30,000 | 7,000 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 810 | 0 |
| 31,000 | 7,000 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 840 | 0 |
| 32,000 | 7,000 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 865 | 0 |
| 33,000 | 7,000 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 895 | 0 |
| 34,000 | 7,000 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 920 | 0 |
| 35,000 | 7,100 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 945 | 0 |
| 36,000 | 7,100 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 975 | 0 |
| 37,000 | 7,100 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 1,000 | 0 |
| 38,000 | 7,100 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 1,030 | 0 |
| 39,000 | 7,100 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 1,055 | 0 |
| 40,000 | 7,100 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725 | 1,725 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.1e(3).

**PROTECTED Personnel Targets
Large Free Rocket**

DELTA/5 KT

**LOW Airburst
Precludes fallout**

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW E _x)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 1,200 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt | Delayed | | |
| 7,000 | 3,400 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | 575 | 775 | 190 | 175 |
| 8,000 | 3,400 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 550 | 775 | 220 | 192 |
| 9,000 | 3,400 | .7/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 550 | 775 | 245 | 210 |
| 10,000 | 3,400 | .7/.8 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.1 | 525 | 750 | 270 | 227 |
| 11,000 | 3,400 | .7/.8 | .6/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 500 | 750 | 300 | 245 |
| 12,000 | 3,500 | .6/.8 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 500 | 725 | 325 | 262 |
| 13,000 | 3,500 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 475 | 725 | 355 | 280 |
| 14,000 | 3,500 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 450 | 700 | 380 | 297 |
| 15,000 | 3,500 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 425 | 675 | 405 | 315 |
| 16,000 | 3,500 | .4/.7 | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 375 | 650 | 435 | 332 |
| 17,000 | 3,500 | .3/.6 | .3/.5 | .2/.4 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .8/.9 | .6/.8 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 350 | 650 | 460 | 350 |
| 18,000 | 3,600 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | .7/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 300 | 625 | 490 | 367 |
| 19,000 | 3,600 | .2/.5 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | .7/.9 | .5/.8 | .4/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 250 | 600 | 515 | 385 |
| 20,000 | 3,600 | .1/.5 | .1/.4 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .0/.2 | 175 | 575 | 540 | 402 |
| 21,000 | 3,600 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.2 | 25 | 550 | 570 | 420 |
| 22,000 | 3,600 | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .5/.8 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0 | 500 | 595 | 437 |
| 23,000 | 3,600 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | .4/.8 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0 | 475 | 625 | 455 |
| 24,000 | 3,700 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .4/.7 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 425 | 650 | 472 |
| 25,000 | 3,700 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | .3/.7 | .2/.6 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 375 | 675 | 490 |
| 26,000 | 3,700 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | .2/.7 | .2/.6 | .2/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.1 | | 0 | 325 | 705 | 507 |
| 27,000 | 3,700 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 250 | 730 | 525 |
| 28,000 | 3,700 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 150 | 760 | 542 |
| 29,000 | 3,700 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 785 | 560 |
| 30,000 | 3,800 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 810 | 577 |
| 31,000 | 3,800 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 840 | 595 |
| 32,000 | 3,800 | .0/.2 | .0/.1 | | | | | | | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 865 | 612 |
| 33,000 | 3,800 | .0/.2 | .0/.1 | | | | | | | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 895 | 630 |
| 34,000 | 3,800 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 920 | 647 |
| 35,000 | 3,800 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 945 | 665 |
| 36,000 | 3,900 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 975 | 682 |
| 37,000 | 3,900 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,000 | 700 |
| 38,000 | 3,900 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,030 | 717 |
| 39,000 | 3,900 | .0/.1 | | | | | | | | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,055 | 735 |
| 40,000 | 3,900 | .0/.1 | | | | | | | | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,080 | 752 |

Figure 5.2a(1).

¹ Large Free Rocket.

PROTECTED Personnel Targets
Large Free Rocket

HIGH Airburst

Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|------|------|------|------|------|-------|-------|------|------------------------|------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt | Delayed | | |
| 7,000 | 3,400 | .8/9 | .7/8 | .6/7 | .4/6 | .3/5 | .3/4 | .2/3 | .1/2 | .9/9 | .9/9 | .7/8 | .5/6 | .3/4 | .2/3 | .2/2 | .1/2 | 500 | 725 | 190 | 303 |
| 8,000 | 3,400 | .8/9 | .7/8 | .5/7 | .4/5 | .3/4 | .2/4 | .2/3 | .1/2 | .9/9 | .8/9 | .6/8 | .5/6 | .3/4 | .2/3 | .1/2 | .1/2 | 475 | 725 | 220 | 320 |
| 9,000 | 3,400 | .8/9 | .6/8 | .5/7 | .4/5 | .3/4 | .2/3 | .2/3 | .1/2 | .9/9 | .8/9 | .6/8 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | 450 | 700 | 245 | 338 |
| 10,000 | 3,400 | .7/9 | .6/8 | .4/6 | .3/5 | .2/4 | .2/3 | .1/3 | .1/2 | .9/9 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | 425 | 675 | 270 | 355 |
| 11,000 | 3,400 | .6/8 | .5/7 | .4/6 | .3/5 | .2/4 | .1/3 | .1/2 | .1/2 | .9/9 | .8/9 | .6/7 | .4/5 | .3/4 | .2/3 | .1/2 | .1/2 | 400 | 675 | 300 | 373 |
| 12,000 | 3,400 | .5/8 | .4/7 | .3/5 | .2/4 | .2/3 | .1/3 | .1/2 | .1/2 | .9/9 | .7/9 | .5/7 | .4/5 | .2/4 | .2/3 | .1/2 | .1/2 | 350 | 650 | 325 | 390 |
| 13,000 | 3,500 | .4/7 | .3/6 | .3/5 | .2/4 | .1/3 | .1/3 | .1/2 | .0/2 | .8/9 | .7/8 | .5/7 | .3/5 | .2/4 | .1/3 | .1/2 | .1/2 | 325 | 625 | 355 | 408 |
| 14,000 | 3,500 | .3/7 | .3/6 | .2/5 | .1/4 | .1/3 | .1/2 | .0/2 | .0/2 | .8/9 | .6/8 | .5/6 | .3/5 | .2/3 | .1/3 | .1/2 | .1/2 | 275 | 600 | 380 | 425 |
| 15,000 | 3,500 | .2/6 | .2/5 | .1/4 | .1/3 | .0/3 | .0/2 | .0/2 | .0/1 | .8/9 | .6/8 | .4/6 | .3/4 | .2/3 | .1/2 | .1/2 | .1/1 | 200 | 575 | 405 | 443 |
| 16,000 | 3,500 | .1/6 | .1/5 | .0/4 | .0/3 | .0/2 | .0/2 | .0/2 | .0/1 | .7/9 | .5/8 | .4/6 | .3/4 | .2/3 | .1/2 | .1/2 | .0/1 | 100 | 550 | 435 | 460 |
| 17,000 | 3,500 | .0/5 | .0/4 | .0/3 | .0/3 | .0/2 | .0/2 | .0/1 | | .7/9 | .5/7 | .3/6 | .2/4 | .1/3 | .1/2 | .1/2 | .0/1 | 0 | 525 | 460 | 478 |
| 18,000 | 3,500 | .0/5 | .0/4 | .0/3 | .0/3 | .0/2 | .0/2 | .0/1 | | .6/8 | .4/7 | .3/5 | .2/4 | .1/3 | .1/2 | .0/2 | .0/1 | 0 | 475 | 490 | 495 |
| 19,000 | 3,600 | .0/4 | .0/3 | .0/3 | .0/2 | .0/2 | .0/1 | | | .5/8 | .4/7 | .3/5 | .2/4 | .1/3 | .0/2 | .0/2 | .0/1 | 0 | 450 | 515 | 513 |
| 20,000 | 3,600 | .0/4 | .0/3 | .0/3 | .0/2 | .0/2 | .0/1 | | | .4/8 | .3/6 | .2/5 | .1/4 | .1/3 | .0/2 | .0/1 | | 0 | 400 | 540 | 530 |
| 21,000 | 3,600 | .0/3 | .0/3 | .0/2 | .0/2 | .0/2 | .0/1 | | | .3/7 | .3/6 | .2/5 | .1/3 | .0/2 | .0/2 | .0/1 | | 0 | 350 | 570 | 548 |
| 22,000 | 3,600 | .0/3 | .0/2 | .0/2 | .0/2 | .0/1 | | | | .2/7 | .2/6 | .1/4 | .0/3 | .0/2 | .0/2 | .0/1 | | 0 | 275 | 595 | 565 |
| 23,000 | 3,600 | .0/3 | .0/2 | .0/2 | .0/2 | .0/1 | | | | .1/6 | .0/5 | .0/4 | .0/3 | .0/2 | .0/2 | .0/1 | | 0 | 175 | 625 | 583 |
| 24,000 | 3,600 | .0/2 | .0/2 | .0/2 | .0/1 | | | | | .0/6 | .0/5 | .0/4 | .0/3 | .0/2 | .0/2 | .0/1 | | 0 | 0 | 650 | 600 |
| 25,000 | 3,700 | .0/2 | .0/2 | .0/1 | | | | | | .0/5 | .0/4 | .0/3 | .0/3 | .0/2 | .0/1 | | | 0 | 0 | 675 | 618 |
| 26,000 | 3,700 | .0/2 | .0/2 | .0/1 | | | | | | .0/5 | .0/4 | .0/3 | .0/2 | .0/2 | .0/1 | | | 0 | 0 | 705 | 635 |
| 27,000 | 3,700 | .0/2 | .0/1 | | | | | | | .0/5 | .0/4 | .0/3 | .0/2 | .0/2 | .0/1 | | | 0 | 0 | 730 | 653 |
| 28,000 | 3,700 | .0/1 | | | | | | | | .0/4 | .0/4 | .0/3 | .0/2 | .0/2 | .0/1 | | | 0 | 0 | 760 | 670 |
| 29,000 | 3,700 | .0/1 | | | | | | | | .0/4 | .0/3 | .0/3 | .0/2 | .0/1 | | | | 0 | 0 | 785 | 688 |
| 30,000 | 3,700 | .0/1 | | | | | | | | .0/4 | .0/3 | .0/2 | .0/2 | .0/1 | | | | 0 | 0 | 810 | 705 |
| 31,000 | 3,800 | .0/1 | | | | | | | | .0/3 | .0/3 | .0/2 | .0/2 | .0/1 | | | | 0 | 0 | 840 | 723 |
| 32,000 | 3,800 | .0/1 | | | | | | | | .0/3 | .0/3 | .0/2 | .0/2 | .0/1 | | | | 0 | 0 | 865 | 740 |
| 33,000 | 3,800 | .0/1 | | | | | | | | .0/3 | .0/2 | .0/2 | .0/1 | | | | | 0 | 0 | 895 | 758 |
| 34,000 | 3,800 | .0/1 | | | | | | | | .0/2 | .0/2 | .0/2 | .0/1 | | | | | 0 | 0 | 920 | 775 |
| 35,000 | 3,800 | .0/1 | | | | | | | | .0/2 | .0/2 | .0/2 | .0/1 | | | | | 0 | 0 | 945 | 793 |
| 36,000 | 3,800 | .0/1 | | | | | | | | .0/2 | .0/2 | .0/2 | .0/1 | | | | | 0 | 0 | 975 | 810 |
| 37,000 | 3,900 | .0/1 | | | | | | | | .0/2 | .0/2 | .0/1 | | | | | | 0 | 0 | 1,000 | 828 |
| 38,000 | 3,900 | .0/1 | | | | | | | | .0/2 | .0/2 | .0/1 | | | | | | 0 | 0 | 1,030 | 845 |
| 39,000 | 3,900 | | | | | | | | | .0/2 | .0/1 | | | | | | | 0 | 0 | 1,055 | 863 |
| 40,000 | 3,900 | | | | | | | | | .0/2 | .0/1 | | | | | | | 0 | 0 | 1,080 | 880 |

Figure 5.2a(2)

**PROTECTED Personnel Targets
Large Free Rocket**

DELTA/5 KT

**IMPACT Burst
Produces fallout**

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
<i>In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage.</i> | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt | Delayed | | |
| 7,000 | 2,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 190 | 0 |
| 8,000 | 2,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 220 | 0 |
| 9,000 | 2,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 245 | 0 |
| 10,000 | 2,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 270 | 0 |
| 11,000 | 2,300 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 300 | 0 |
| 12,000 | 2,300 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 325 | 0 |
| 13,000 | 2,300 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 355 | 0 |
| 14,000 | 2,300 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 380 | 0 |
| 15,000 | 2,300 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 405 | 0 |
| 16,000 | 2,400 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 825 | 435 | 0 |
| 17,000 | 2,400 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 460 | 0 |
| 18,000 | 2,400 | .6/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.9 | .6/.7 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 490 | 0 |
| 19,000 | 2,400 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 515 | 0 |
| 20,000 | 2,400 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 540 | 0 |
| 21,000 | 2,400 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.7 | .4/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 570 | 0 |
| 22,000 | 2,500 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.7 | .4/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 595 | 0 |
| 23,000 | 2,500 | .5/.8 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .7/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 625 | 0 |
| 24,000 | 2,500 | .4/.8 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 650 | 0 |
| 25,000 | 2,500 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .5/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 675 | 0 |
| 26,000 | 2,500 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.9 | .5/.8 | .4/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 705 | 0 |
| 27,000 | 2,600 | .3/.7 | .3/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 730 | 0 |
| 28,000 | 2,600 | .3/.7 | .3/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 760 | 0 |
| 29,000 | 2,600 | .3/.7 | .3/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8 | .4/.8 | .4/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 785 | 0 |
| 30,000 | 2,600 | .2/.7 | .2/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8 | .4/.8 | .4/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 810 | 0 |
| 31,000 | 2,600 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .4/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 625 | 825 | 840 | 0 |
| 32,000 | 2,600 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 865 | 0 |
| 33,000 | 2,700 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .4/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 895 | 0 |
| 34,000 | 2,700 | .1/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .4/.8 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 920 | 0 |
| 35,000 | 2,700 | .1/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .4/.8 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 945 | 0 |
| 36,000 | 2,700 | .1/.5 | .1/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .4/.7 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 975 | 0 |
| 37,000 | 2,700 | .1/.5 | .1/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .4/.7 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 1,000 | 0 |
| 38,000 | 2,700 | .1/.5 | .1/.5 | .1/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .3/.7 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 1,030 | 0 |
| 39,000 | 2,800 | .0/.5 | .1/.5 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .2/.7 | .2/.6 | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 1,055 | 0 |
| 40,000 | 2,800 | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .2/.7 | .2/.6 | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | 625 | 825 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.2a(3).

LFR 1

PROTECTED Personnel Targets
Large Free Rocket

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters)
Prompt Delayed | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|--|-----|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 2,000 | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| 7,000 | 4,200 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | 650 | 875 | 190 | 188 |
| 8,000 | 4,200 | .8/.9 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | 650 | 875 | 220 | 205 |
| 9,000 | 4,200 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | 625 | 875 | 245 | 223 |
| 10,000 | 4,300 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 625 | 850 | 270 | 240 |
| 11,000 | 4,300 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 600 | 850 | 300 | 258 |
| 12,000 | 4,300 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .9/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 600 | 825 | 325 | 275 |
| 13,000 | 4,300 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | .9/.9 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 575 | 825 | 355 | 293 |
| 14,000 | 4,300 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | .9/.9 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 550 | 800 | 380 | 310 |
| 15,000 | 4,300 | .5/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | | .9/.9 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 525 | 800 | 405 | 328 |
| 16,000 | 4,300 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | 500 | 775 | 435 | 345 |
| 17,000 | 4,400 | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | 475 | 750 | 460 | 363 |
| 18,000 | 4,400 | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | .8/.9 | .7/.9 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | 450 | 725 | 490 | 380 |
| 19,000 | 4,400 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .8/.9 | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | 400 | 725 | 515 | 398 |
| 20,000 | 4,400 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .8/.9 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | 350 | 700 | 540 | 415 |
| 21,000 | 4,400 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | | | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | 300 | 675 | 570 | 433 |
| 22,000 | 4,500 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | .7/.9 | .6/.8 | .4/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 250 | 650 | 595 | 450 |
| 23,000 | 4,500 | .1/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .6/.9 | .5/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | 175 | 625 | 625 | 468 |
| 24,000 | 4,500 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .6/.8 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | 0 | 575 | 650 | 485 |
| 25,000 | 4,500 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .5/.8 | .4/.7 | .3/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | 0 | 550 | 675 | 503 |
| 26,000 | 4,500 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .4/.8 | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.1 | 0 | 500 | 705 | 520 |
| 27,000 | 4,500 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | .4/.7 | .3/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.1 | 0 | 475 | 730 | 538 |
| 28,000 | 4,600 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .3/.7 | .2/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.3 | .0/.2 | .0/.1 | 0 | 425 | 760 | 555 |
| 29,000 | 4,600 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .2/.7 | .2/.6 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 350 | 785 | 573 |
| 30,000 | 4,600 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .1/.6 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 275 | 810 | 590 |
| 31,000 | 4,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.6 | .0/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 175 | 840 | 608 |
| 32,000 | 4,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 0 | 865 | 625 |
| 33,000 | 4,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 0 | 895 | 643 |
| 34,000 | 4,700 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 0 | 0 | 920 | 660 |
| 35,000 | 4,700 | .0/.2 | .0/.1 | | | | | | | .0/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 945 | 678 |
| 36,000 | 4,700 | .0/.2 | .0/.1 | | | | | | | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 975 | 695 |
| 37,000 | 4,700 | .0/.2 | .0/.1 | | | | | | | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 1,000 | 713 |
| 38,000 | 4,700 | .0/.1 | | | | | | | | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 1,030 | 730 |
| 39,000 | 4,700 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 1,055 | 748 |
| 40,000 | 4,800 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 1,080 | 765 |

Figure 5.2b(1).

PROTECTED Personnel Targets
Large Free Rocket

ECHO/10 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|--|--|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | Prompt | Delayed | | |
| 7,000 | 4,200 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 575 | 825 | 190 | 350 |
| 8,000 | 4,200 | .7/.8 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | | | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 550 | 800 | 220 | 367 |
| 9,000 | 4,200 | .6/.8 | .4/.5 | .2/.4 | .1/.2 | .1/.2 | .1/.1 | | | .9/.9 | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 525 | 800 | 245 | 385 |
| 10,000 | 4,200 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | 500 | 775 | 270 | 402 |
| 11,000 | 4,300 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | 475 | 750 | 300 | 420 |
| 12,000 | 4,300 | .5/.7 | .3/.4 | .1/.3 | .1/.2 | .1/.1 | | | | .9/.9 | .9/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | 450 | 725 | 325 | 437 |
| 13,000 | 4,300 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | | .9/.9 | .9/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | 400 | 725 | 355 | 455 |
| 14,000 | 4,300 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | | .9/.9 | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 350 | 700 | 380 | 472 |
| 15,000 | 4,300 | .3/.5 | .1/.4 | .1/.2 | .0/.2 | .0/.1 | | | | .9/.9 | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 300 | 675 | 405 | 490 |
| 16,000 | 4,300 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 250 | 650 | 435 | 507 |
| 17,000 | 4,400 | .1/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | .8/.9 | .6/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 175 | 625 | 460 | 525 |
| 18,000 | 4,400 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .7/.9 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 0 | 575 | 490 | 542 |
| 19,000 | 4,400 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .7/.9 | .5/.8 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | 0 | 550 | 515 | 560 |
| 20,000 | 4,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .6/.8 | .5/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.2 | 0 | 500 | 540 | 577 |
| 21,000 | 4,400 | .0/.3 | .0/.2 | .0/.1 | | | | | | .5/.8 | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 0 | 475 | 570 | 595 |
| 22,000 | 4,400 | .0/.3 | .0/.2 | .0/.1 | | | | | | .4/.8 | .3/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 425 | 595 | 612 |
| 23,000 | 4,500 | .0/.3 | .0/.2 | .0/.1 | | | | | | .3/.7 | .3/.6 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 350 | 625 | 630 |
| 24,000 | 4,500 | .0/.2 | .0/.2 | .0/.1 | | | | | | .2/.7 | .2/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 275 | 650 | 647 |
| 25,000 | 4,500 | .0/.2 | .0/.1 | | | | | | | .1/.7 | .0/.6 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | 175 | 675 | 665 |
| 26,000 | 4,500 | .0/.2 | .0/.1 | | | | | | | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 705 | 682 |
| 27,000 | 4,500 | .0/.2 | .0/.1 | | | | | | | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 730 | 700 |
| 28,000 | 4,500 | .0/.2 | .0/.1 | | | | | | | .0/.5 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 760 | 717 |
| 29,000 | 4,600 | .0/.1 | | | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | 0 | 785 | 735 |
| 30,000 | 4,600 | .0/.1 | | | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 810 | 752 |
| 31,000 | 4,600 | .0/.1 | | | | | | | | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 840 | 770 |
| 32,000 | 4,600 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 865 | 787 |
| 33,000 | 4,600 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 0 | 895 | 805 |
| 34,000 | 4,700 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 920 | 822 |
| 35,000 | 4,700 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 945 | 840 |
| 36,000 | 4,700 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 975 | 857 |
| 37,000 | 4,700 | .0/.1 | | | | | | | | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,000 | 875 |
| 38,000 | 4,700 | .0/.1 | | | | | | | | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,030 | 892 |
| 39,000 | 4,700 | .0/.1 | | | | | | | | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,055 | 910 |
| 40,000 | 4,800 | .0/.1 | | | | | | | | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,080 | 927 |

LFR 1

Figure 5.2b(2)

PROTECTED Personnel Targets
Large Free Rocket

IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 2,000 | 2,400 | Prompt | Delayed | | |
| 7,000 | 2,700 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 190 | 0 |
| 8,000 | 2,700 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 220 | 0 |
| 9,000 | 2,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 245 | 0 |
| 10,000 | 2,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 270 | 0 |
| 11,000 | 2,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 300 | 0 |
| 12,000 | 2,800 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 325 | 0 |
| 13,000 | 2,800 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .7/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 355 | 0 |
| 14,000 | 2,900 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 380 | 0 |
| 15,000 | 2,900 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 405 | 0 |
| 16,000 | 2,900 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 435 | 0 |
| 17,000 | 2,900 | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 460 | 0 |
| 18,000 | 2,900 | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 490 | 0 |
| 19,000 | 2,900 | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 515 | 0 |
| 20,000 | 3,000 | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 540 | 0 |
| 21,000 | 3,000 | .5/.8 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 570 | 0 |
| 22,000 | 3,000 | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 595 | 0 |
| 23,000 | 3,000 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 625 | 0 |
| 24,000 | 3,000 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 650 | 0 |
| 25,000 | 3,000 | .4/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.9 | .5/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 675 | 0 |
| 26,000 | 3,100 | .4/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.8 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 705 | 0 |
| 27,000 | 3,100 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 730 | 0 |
| 28,000 | 3,100 | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 760 | 0 |
| 29,000 | 3,100 | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 785 | 0 |
| 30,000 | 3,100 | .3/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 810 | 0 |
| 31,000 | 3,200 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 840 | 0 |
| 32,000 | 3,200 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .4/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 865 | 0 |
| 33,000 | 3,200 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 895 | 0 |
| 34,000 | 3,200 | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 920 | 0 |
| 35,000 | 3,200 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 945 | 0 |
| 36,000 | 3,200 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 975 | 0 |
| 37,000 | 3,300 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 1,000 | 0 |
| 38,000 | 3,300 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .4/.7 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 1,030 | 0 |
| 39,000 | 3,300 | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .4/.7 | .3/.6 | .3/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.2 | .1/.2 | 700 | 925 | 1,055 | 0 |
| 40,000 | 3,300 | .1/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .3/.7 | .3/.6 | .3/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 700 | 925 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.2b(3).

**PROTECTED Personnel Targets
Large Free Rocket**

FOXTROT/20 KT

**LOW Airburst
Precludes fallout**

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d ₀
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | Prompt | Delayed | | |
| 7,000 | 6,000 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 750 | 1,000 | 190 | 205 |
| 8,000 | 6,000 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 750 | 975 | 220 | 222 |
| 9,000 | 6,100 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 725 | 975 | 245 | 240 |
| 10,000 | 6,100 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 725 | 975 | 270 | 257 |
| 11,000 | 6,100 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 700 | 950 | 300 | 275 |
| 12,000 | 6,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 700 | 950 | 325 | 292 |
| 13,000 | 6,100 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 675 | 925 | 355 | 310 |
| 14,000 | 6,100 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 650 | 925 | 380 | 327 |
| 15,000 | 6,200 | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 | | 625 | 900 | 405 | 345 |
| 16,000 | 6,200 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 | | 625 | 875 | 435 | 363 |
| 17,000 | 6,200 | .6/.8 | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.9 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | 600 | 875 | 460 | 380 |
| 18,000 | 6,200 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .4/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 575 | 850 | 490 | 397 |
| 19,000 | 6,200 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .4/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 550 | 825 | 515 | 415 |
| 20,000 | 6,200 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 500 | 825 | 540 | 432 |
| 21,000 | 6,300 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 475 | 800 | 570 | 450 |
| 22,000 | 6,300 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .8/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .1/.1 | | | 425 | 775 | 595 | 467 |
| 23,000 | 6,300 | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .0/.2 | .0/.1 | | | .8/.9 | .5/.8 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | 375 | 750 | 625 | 485 |
| 24,000 | 6,300 | .2/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | 325 | 725 | 650 | 502 |
| 25,000 | 6,300 | .1/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | .7/.9 | .5/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 | | | 250 | 700 | 675 | 520 |
| 26,000 | 6,300 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .6/.9 | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.1 | | | 150 | 650 | 705 | 537 |
| 27,000 | 6,400 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .6/.8 | .4/.7 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 625 | 730 | 555 |
| 28,000 | 6,400 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 600 | 760 | 573 |
| 29,000 | 6,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.8 | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 550 | 785 | 590 |
| 30,000 | 6,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.8 | .3/.6 | .1/.4 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 500 | 810 | 607 |
| 31,000 | 6,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .3/.7 | .2/.6 | .1/.4 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 450 | 840 | 625 |
| 32,000 | 6,400 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .2/.7 | .2/.5 | .1/.4 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 400 | 865 | 642 |
| 33,000 | 6,500 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .1/.7 | .2/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 325 | 895 | 660 |
| 34,000 | 6,500 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 225 | 920 | 677 |
| 35,000 | 6,500 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 945 | 695 |
| 36,000 | 6,500 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 975 | 712 |
| 37,000 | 6,500 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,000 | 730 |
| 38,000 | 6,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,030 | 747 |
| 39,000 | 6,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,055 | 765 |
| 40,000 | 6,600 | .0/.2 | .0/.1 | | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,080 | 782 |

LFR 1

Figure 5.2c(1).

¹Large Free Rocket.

PROTECTED Personnel Targets
Large Free Rocket

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | Prompt | Delayed | | |
| 7,000 | 5,900 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 | | 650 | 900 | 190 | 409 |
| 8,000 | 6,000 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.3 | .1/.2 | .1/.2 | .0/.1 | | 625 | 900 | 220 | 426 |
| 9,000 | 6,000 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 600 | 875 | 245 | 443 |
| 10,000 | 6,000 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .2/.3 | .1/.2 | .1/.1 | | | 575 | 850 | 270 | 461 |
| 11,000 | 6,000 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .8/.9 | .4/.6 | .2/.3 | .1/.2 | .1/.1 | | | 550 | 850 | 300 | 479 |
| 12,000 | 6,000 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.9 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 525 | 825 | 325 | 496 |
| 13,000 | 6,000 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 475 | 800 | 355 | 514 |
| 14,000 | 6,100 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 450 | 775 | 380 | 531 |
| 15,000 | 6,100 | .4/.7 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .9/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | 400 | 750 | 405 | 549 |
| 16,000 | 6,100 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | .9/.9 | .6/.8 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | 350 | 725 | 435 | 566 |
| 17,000 | 6,100 | .2/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | | | .8/.9 | .6/.8 | .3/.5 | .1/.3 | .1/.2 | .0/.1 | | | 300 | 700 | 460 | 584 |
| 18,000 | 6,100 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | .8/.9 | .5/.7 | .3/.4 | .1/.3 | .1/.2 | .0/.1 | | | 225 | 675 | 490 | 601 |
| 19,000 | 6,200 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .8/.9 | .5/.7 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 50 | 650 | 515 | 619 |
| 20,000 | 6,200 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .7/.9 | .4/.7 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 0 | 600 | 540 | 636 |
| 21,000 | 6,200 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .7/.9 | .4/.7 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 575 | 570 | 654 |
| 22,000 | 6,200 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .0/.1 | | | | 0 | 525 | 595 | 671 |
| 23,000 | 6,200 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .5/.8 | .3/.6 | .1/.4 | .0/.2 | .0/.1 | | | | 0 | 475 | 625 | 689 |
| 24,000 | 6,200 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .4/.8 | .3/.6 | .1/.3 | .0/.2 | .0/.1 | | | | 0 | 425 | 650 | 706 |
| 25,000 | 6,300 | .0/.3 | .0/.2 | .0/.1 | | | | | | .3/.7 | .2/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 350 | 675 | 724 |
| 26,000 | 6,300 | .0/.3 | .0/.2 | .0/.1 | | | | | | .2/.7 | .1/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 275 | 705 | 741 |
| 27,000 | 6,300 | .0/.2 | .0/.2 | .0/.1 | | | | | | .1/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 150 | 730 | 759 |
| 28,000 | 6,300 | .0/.2 | .0/.2 | .0/.1 | | | | | | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 760 | 776 |
| 29,000 | 6,300 | .0/.2 | .0/.1 | | | | | | | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 785 | 794 |
| 30,000 | 6,300 | .0/.2 | .0/.1 | | | | | | | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 810 | 811 |
| 31,000 | 6,400 | .0/.2 | .0/.1 | | | | | | | .0/.5 | .0/.4 | .0/.2 | .0/.1 | | | | | 0 | 0 | 840 | 829 |
| 32,000 | 6,400 | .0/.1 | | | | | | | | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 865 | 846 |
| 33,000 | 6,400 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 895 | 864 |
| 34,000 | 6,500 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 920 | 881 |
| 35,000 | 6,500 | .0/.1 | | | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 945 | 899 |
| 36,000 | 6,500 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 975 | 916 |
| 37,000 | 6,500 | .0/.1 | | | | | | | | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,000 | 934 |
| 38,000 | 6,500 | .0/.1 | | | | | | | | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,030 | 951 |
| 39,000 | 6,600 | .0/.1 | | | | | | | | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 0 | 1,055 | 969 |
| 40,000 | 6,600 | .0/.1 | | | | | | | | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 0 | 1,080 | 986 |

Figure 5.2c(2).

**PROTECTED Personnel Targets
Large Free Rocket**

FOXTROT/20 KT

**IMPACT Burst
Produces fallout**

| Range

(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-----------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | Prompt | Delayed | | |
| 7,000 | 3,600 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 190 | 0 |
| 8,000 | 3,600 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 220 | 0 |
| 9,000 | 3,600 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 245 | 0 |
| 10,000 | 3,600 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 270 | 0 |
| 11,000 | 3,600 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 300 | 0 |
| 12,000 | 3,600 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 325 | 0 |
| 13,000 | 3,700 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 355 | 0 |
| 14,000 | 3,700 | .9/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 380 | 0 |
| 15,000 | 3,700 | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 405 | 0 |
| 16,000 | 3,700 | .7/.9 | .6/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 435 | 0 |
| 17,000 | 3,700 | .7/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 460 | 0 |
| 18,000 | 3,700 | .7/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 490 | 0 |
| 19,000 | 3,800 | .7/.9 | .6/.7 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 515 | 0 |
| 20,000 | 3,800 | .7/.8 | .6/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 540 | 0 |
| 21,000 | 3,900 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 570 | 0 |
| 22,000 | 3,900 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 595 | 0 |
| 23,000 | 3,800 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 625 | 0 |
| 24,000 | 3,900 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 650 | 0 |
| 25,000 | 3,900 | .5/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 675 | 0 |
| 26,000 | 3,900 | .5/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 705 | 0 |
| 27,000 | 3,900 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 730 | 0 |
| 28,000 | 3,900 | .5/.8 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 760 | 0 |
| 29,000 | 3,900 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 785 | 0 |
| 30,000 | 4,000 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 810 | 0 |
| 31,000 | 4,000 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 840 | 0 |
| 32,000 | 4,000 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 865 | 0 |
| 33,000 | 4,000 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 895 | 0 |
| 34,000 | 4,000 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .7/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 920 | 0 |
| 35,000 | 4,000 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.9 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 945 | 0 |
| 36,000 | 4,100 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 975 | 0 |
| 37,000 | 4,100 | .3/.7 | .3/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.8 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 1,000 | 0 |
| 38,000 | 4,100 | .2/.6 | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 1,030 | 0 |
| 39,000 | 4,100 | .2/.6 | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 1,055 | 0 |
| 40,000 | 4,100 | .2/.6 | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .5/.8 | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 800 | 1,025 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.2c(3).

PROTECTED Personnel Targets
Large Free Rocket

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | Prompt | Delayed | | |
| 7,000 | 8,900 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,150 | 190 | 234 |
| 8,000 | 8,900 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,150 | 220 | 251 |
| 9,000 | 8,900 | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,125 | 245 | 269 |
| 10,000 | 8,900 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 850 | 1,125 | 270 | 286 |
| 11,000 | 8,900 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 850 | 1,125 | 300 | 304 |
| 12,000 | 8,900 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 825 | 1,100 | 325 | 321 |
| 13,000 | 9,000 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 800 | 1,100 | 355 | 339 |
| 14,000 | 9,000 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 800 | 1,075 | 380 | 356 |
| 15,000 | 9,000 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 775 | 1,075 | 405 | 374 |
| 16,000 | 9,000 | .6/.8 | .5/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 750 | 1,050 | 435 | 391 |
| 17,000 | 9,000 | .6/.8 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 725 | 1,050 | 460 | 409 |
| 18,000 | 9,000 | .6/.7 | .4/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 725 | 1,025 | 490 | 426 |
| 19,000 | 9,100 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 700 | 1,000 | 515 | 444 |
| 20,000 | 9,100 | .5/.7 | .4/.6 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 650 | 1,000 | 540 | 461 |
| 21,000 | 9,100 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 625 | 975 | 570 | 479 |
| 22,000 | 9,100 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .0/.1 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 625 | 950 | 595 | 496 |
| 23,000 | 9,100 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.2 | .0/.1 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 600 | 925 | 625 | 514 |
| 24,000 | 9,100 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 575 | 900 | 650 | 531 |
| 25,000 | 9,200 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .6/.8 | .4/.6 | .3/.4 | .1/.3 | .1/.2 | .0/.1 | | | 550 | 875 | 675 | 549 |
| 26,000 | 9,200 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 500 | 850 | 705 | 566 |
| 27,000 | 9,200 | .3/.6 | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 475 | 825 | 730 | 584 |
| 28,000 | 9,200 | .2/.5 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 450 | 800 | 760 | 601 |
| 29,000 | 9,200 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | .5/.8 | .3/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 400 | 775 | 785 | 619 |
| 30,000 | 9,300 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .5/.7 | .3/.5 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | | 375 | 750 | 810 | 636 |
| 31,000 | 9,300 | .1/.4 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.2 | .0/.1 | | | 325 | 700 | 840 | 654 |
| 32,000 | 9,300 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | 250 | 675 | 865 | 671 |
| 33,000 | 9,300 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.7 | .2/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | 200 | 625 | 895 | 689 |
| 34,000 | 9,300 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .3/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 125 | 600 | 920 | 706 |
| 35,000 | 9,300 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .2/.6 | .2/.5 | .1/.3 | .0/.2 | .0/.1 | | | | 50 | 550 | 945 | 724 |
| 36,000 | 9,400 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 475 | 975 | 741 |
| 37,000 | 9,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 425 | 1,000 | 759 |
| 38,000 | 9,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 325 | 1,030 | 776 |
| 39,000 | 9,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 225 | 1,055 | 794 |
| 40,000 | 9,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 0 | 1,080 | 811 |

Figure 5.2d(1).

**PROTECTED Personnel Targets
Large Free Rocket**

GOLF/50 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R_D
(meters) | | Offset
distance
d_0
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|--|---------|---|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | Prompt | Delayed | | |
| 7,000 | 8,800 | .9/9 | .7/8 | .5/6 | .3/4 | .2/3 | .2/2 | .1/2 | .1/2 | .9/9 | .6/7 | .3/4 | .2/3 | .1/2 | .1/2 | .0/.1 | | 725 | 1,025 | 190 | 510 |
| 8,000 | 8,900 | .8/9 | .6/8 | .4/6 | .3/4 | .2/3 | .1/2 | .1/2 | .1/2 | .9/9 | .6/7 | .3/4 | .2/3 | .1/2 | .1/1 | | | 700 | 1,025 | 220 | 527 |
| 9,000 | 8,900 | .8/9 | .6/8 | .4/6 | .3/4 | .2/3 | .1/2 | .1/2 | .1/1 | .9/9 | .6/7 | .3/4 | .2/3 | .1/2 | .1/1 | | | 675 | 1,000 | 245 | 545 |
| 10,000 | 8,900 | .8/9 | .6/7 | .4/5 | .2/4 | .2/3 | .1/2 | .1/2 | .1/1 | .9/9 | .6/7 | .3/4 | .2/3 | .1/2 | .1/1 | | | 650 | 975 | 270 | 562 |
| 11,000 | 8,900 | .7/9 | .5/7 | .3/5 | .2/4 | .1/3 | .1/2 | .1/2 | .0/1 | .8/9 | .6/7 | .3/4 | .2/3 | .1/2 | .1/1 | | | 625 | 975 | 300 | 580 |
| 12,000 | 8,900 | .7/9 | .5/7 | .3/5 | .2/4 | .1/3 | .1/2 | .1/2 | .0/1 | .8/9 | .5/7 | .3/4 | .2/3 | .1/2 | .1/1 | | | 625 | 950 | 325 | 597 |
| 13,000 | 8,900 | .7/8 | .5/7 | .3/5 | .2/3 | .1/3 | .1/2 | .1/2 | .0/1 | .8/9 | .5/7 | .3/4 | .2/3 | .1/2 | .1/1 | | | 600 | 925 | 355 | 615 |
| 14,000 | 9,000 | .6/8 | .4/6 | .3/5 | .2/3 | .1/2 | .1/2 | .0/1 | | .8/9 | .5/6 | .3/4 | .1/3 | .1/2 | .1/1 | | | 575 | 900 | 380 | 632 |
| 15,000 | 9,000 | .6/8 | .4/6 | .2/4 | .1/3 | .1/2 | .1/2 | .0/1 | | .8/9 | .5/6 | .2/4 | .1/3 | .1/2 | .0/1 | | | 525 | 875 | 405 | 650 |
| 16,000 | 9,000 | .5/7 | .3/6 | .2/4 | .1/3 | .1/2 | .0/2 | .0/1 | | .7/9 | .4/6 | .2/4 | .1/2 | .1/2 | .0/1 | | | 500 | 850 | 435 | 667 |
| 17,000 | 9,000 | .4/7 | .3/5 | .2/4 | .1/3 | .1/2 | .0/2 | .0/1 | | .7/9 | .4/6 | .2/4 | .1/2 | .1/2 | .0/1 | | | 475 | 825 | 460 | 685 |
| 18,000 | 9,000 | .4/7 | .2/5 | .1/4 | .1/3 | .0/2 | .0/2 | .0/1 | | .7/8 | .4/6 | .2/4 | .1/2 | .1/2 | .0/1 | | | 425 | 800 | 490 | 702 |
| 19,000 | 9,000 | .3/6 | .2/5 | .1/3 | .1/3 | .0/2 | .0/1 | | | .6/8 | .4/6 | .2/3 | .1/2 | .1/2 | .0/1 | | | 400 | 775 | 515 | 720 |
| 20,000 | 9,100 | .3/6 | .1/5 | .1/3 | .0/2 | .0/2 | .0/1 | | | .6/8 | .3/5 | .2/3 | .1/2 | .0/2 | .0/1 | | | 350 | 750 | 540 | 737 |
| 21,000 | 9,100 | .2/6 | .1/4 | .0/3 | .0/2 | .0/2 | .0/1 | | | .5/8 | .3/5 | .1/3 | .1/2 | .0/1 | | | | 300 | 700 | 570 | 755 |
| 22,000 | 9,100 | .1/5 | .0/4 | .0/3 | .0/2 | .0/1 | | | | .5/7 | .3/5 | .1/3 | .1/2 | .0/1 | | | | 250 | 675 | 595 | 772 |
| 23,000 | 9,100 | .0/5 | .0/3 | .0/2 | .0/2 | .0/1 | | | | .4/7 | .2/5 | .1/3 | .0/2 | .0/1 | | | | 175 | 625 | 625 | 790 |
| 24,000 | 9,100 | .0/5 | .0/3 | .0/2 | .0/2 | .0/1 | | | | .4/7 | .2/5 | .1/3 | .0/2 | .0/1 | | | | 100 | 575 | 650 | 807 |
| 25,000 | 9,200 | .0/4 | .0/3 | .0/2 | .0/2 | .0/1 | | | | .4/7 | .2/4 | .1/3 | .0/2 | .0/1 | | | | 25 | 525 | 675 | 825 |
| 26,000 | 9,200 | .0/4 | .0/3 | .0/2 | .0/1 | | | | | .3/6 | .1/4 | .0/3 | .0/2 | .0/1 | | | | 0 | 475 | 705 | 842 |
| 27,000 | 9,200 | .0/4 | .0/3 | .0/2 | .0/1 | | | | | .2/6 | .1/4 | .0/2 | .0/2 | .0/1 | | | | 0 | 400 | 730 | 860 |
| 28,000 | 9,200 | .0/4 | .0/3 | .0/2 | .0/1 | | | | | .2/6 | .0/4 | .0/2 | .0/2 | .0/1 | | | | 0 | 325 | 760 | 877 |
| 29,000 | 9,200 | .0/4 | .0/2 | .0/2 | .0/1 | | | | | .0/5 | .0/4 | .0/2 | .0/1 | | | | | 0 | 200 | 785 | 895 |
| 30,000 | 9,200 | .0/3 | .0/2 | .0/2 | .0/1 | | | | | .0/5 | .0/3 | .0/2 | .0/1 | | | | | 0 | 0 | 810 | 912 |
| 31,000 | 9,300 | .0/3 | .0/2 | .0/1 | | | | | | .0/5 | .0/3 | .0/2 | .0/1 | | | | | 0 | 0 | 840 | 930 |
| 32,000 | 9,300 | .0/3 | .0/2 | .0/1 | | | | | | .0/5 | .0/3 | .0/2 | .0/1 | | | | | 0 | 0 | 865 | 947 |
| 33,000 | 9,300 | .0/3 | .0/2 | .0/1 | | | | | | .0/4 | .0/3 | .0/2 | .0/1 | | | | | 0 | 0 | 895 | 965 |
| 34,000 | 9,300 | .0/3 | .0/2 | .0/1 | | | | | | .0/4 | .0/3 | .0/2 | .0/1 | | | | | 0 | 0 | 920 | 982 |
| 35,000 | 9,300 | .0/3 | .0/2 | .0/1 | | | | | | .0/4 | .0/3 | .0/2 | .0/1 | | | | | 0 | 0 | 945 | 1,000 |
| 36,000 | 9,300 | .0/2 | .0/1 | | | | | | | .0/4 | .0/2 | .0/2 | .0/1 | | | | | 0 | 0 | 975 | 1,017 |
| 37,000 | 9,400 | .0/2 | .0/1 | | | | | | | .0/3 | .0/2 | .0/1 | | | | | | 0 | 0 | 1,000 | 1,035 |
| 38,000 | 9,400 | .0/2 | .0/1 | | | | | | | .0/3 | .0/2 | .0/1 | | | | | | 0 | 0 | 1,030 | 1,052 |
| 39,000 | 9,400 | .0/2 | .0/1 | | | | | | | .0/3 | .0/2 | .0/1 | | | | | | 0 | 0 | 1,055 | 1,070 |
| 40,000 | 9,400 | .0/2 | .0/1 | | | | | | | .0/3 | .0/2 | .0/1 | | | | | | 0 | 0 | 1,080 | 1,087 |

Figure 5.2d(2)

LFR 1

¹Large Free Rocket.

PROTECTED Personnel Targets
Large Free Rocket

IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | Prompt | Delayed | | |
| 7,000 | 5,000 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 190 | 0 |
| 8,000 | 5,000 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 220 | 0 |
| 9,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.1 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 245 | 0 |
| 10,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 270 | 0 |
| 11,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 300 | 0 |
| 12,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 325 | 0 |
| 13,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 355 | 0 |
| 14,000 | 5,100 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 380 | 0 |
| 15,000 | 5,200 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 405 | 0 |
| 16,000 | 5,200 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 435 | 0 |
| 17,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 460 | 0 |
| 18,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 490 | 0 |
| 19,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 515 | 0 |
| 20,000 | 5,200 | .9/.9 | .7/.8 | .5/.6 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 540 | 0 |
| 21,000 | 5,300 | .9/.9 | .7/.8 | .5/.6 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 570 | 0 |
| 22,000 | 5,300 | .8/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 595 | 0 |
| 23,000 | 5,300 | .8/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 625 | 0 |
| 24,000 | 5,300 | .8/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 650 | 0 |
| 25,000 | 5,300 | .8/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 675 | 0 |
| 26,000 | 5,300 | .8/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 705 | 0 |
| 27,000 | 5,400 | .7/.9 | .5/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 730 | 0 |
| 28,000 | 5,400 | .7/.9 | .5/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 760 | 0 |
| 29,000 | 5,400 | .7/.9 | .5/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 785 | 0 |
| 30,000 | 5,400 | .7/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 810 | 0 |
| 31,000 | 5,400 | .6/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 840 | 0 |
| 32,000 | 5,500 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 865 | 0 |
| 33,000 | 5,500 | .6/.8 | .4/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .6/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 895 | 0 |
| 34,000 | 5,500 | .6/.8 | .4/.7 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 920 | 0 |
| 35,000 | 5,500 | .5/.8 | .4/.7 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 945 | 0 |
| 36,000 | 5,500 | .5/.8 | .4/.7 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | | 925 | 1,175 | 975 | 0 |
| 37,000 | 5,500 | .5/.8 | .4/.7 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 925 | 1,175 | 1,000 | 0 |
| 38,000 | 5,600 | .5/.8 | .4/.7 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 925 | 1,175 | 1,030 | 0 |
| 39,000 | 5,600 | .4/.8 | .4/.7 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .5/.8 | .4/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 925 | 1,175 | 1,055 | 0 |
| 40,000 | 5,600 | .4/.8 | .3/.6 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .5/.8 | .4/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 925 | 1,175 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.2d(3)

**PROTECTED Personnel Targets
Large Free Rocket**

HOTEL/100 KT

**LOW Airburst
Precludes fallout**

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d ₀
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | Prompt | Delayed | | |
| 7,000 | 11,300 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,025 | 1,275 | 190 | 263 |
| 8,000 | 11,600 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 220 | 280 |
| 9,000 | 11,600 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | 245 | 298 |
| 10,000 | 11,600 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 975 | 1,250 | 270 | 315 |
| 11,000 | 11,600 | .9/.9 | .8/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 975 | 1,225 | 300 | 333 |
| 12,000 | 11,700 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 950 | 1,225 | 325 | 350 |
| 13,000 | 11,700 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 950 | 1,200 | 355 | 368 |
| 14,000 | 11,700 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 925 | 1,200 | 380 | 385 |
| 15,000 | 11,700 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 925 | 1,175 | 405 | 403 |
| 16,000 | 11,700 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 900 | 1,175 | 435 | 420 |
| 17,000 | 11,700 | .9/.9 | .7/.9 | .5/.6 | .3/.4 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 875 | 1,150 | 460 | 438 |
| 18,000 | 11,800 | .9/.9 | .7/.9 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | .9/.9 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 875 | 1,150 | 490 | 455 |
| 19,000 | 11,800 | .9/.9 | .7/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 850 | 1,125 | 515 | 473 |
| 20,000 | 11,800 | .9/.9 | .7/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 850 | 1,125 | 540 | 490 |
| 21,000 | 11,800 | .9/.9 | .6/.8 | .4/.6 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | | 850 | 1,100 | 570 | 508 |
| 22,000 | 11,800 | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.8 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | 850 | 1,075 | 595 | 525 |
| 23,000 | 11,800 | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | | 850 | 1,050 | 625 | 543 |
| 24,000 | 11,900 | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.1 | | 825 | 1,050 | 650 | 560 |
| 25,000 | 11,900 | .8/.9 | .5/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | .0/.1 | | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | | 800 | 1,025 | 675 | 578 |
| 26,000 | 11,900 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.1 | | | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | | 800 | 1,000 | 705 | 595 |
| 27,000 | 11,900 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.1 | | | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | | 800 | 975 | 730 | 613 |
| 28,000 | 11,900 | .6/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.1 | | | .6/.8 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | | 775 | 950 | 760 | 630 |
| 29,000 | 12,000 | .6/.9 | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | .6/.8 | .4/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .0/.1 | | 750 | 925 | 785 | 648 |
| 30,000 | 12,000 | .5/.8 | .4/.7 | .3/.5 | .2/.3 | .1/.2 | .0/.1 | | | .6/.8 | .4/.6 | .3/.4 | .1/.3 | .1/.3 | .1/.2 | .0/.1 | | 725 | 900 | 810 | 665 |
| 31,000 | 12,000 | .5/.8 | .4/.7 | .3/.4 | .1/.3 | .1/.2 | .0/.1 | | | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.1 | | 700 | 875 | 840 | 683 |
| 32,000 | 12,000 | .4/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .5/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 675 | 825 | 865 | 700 |
| 33,000 | 12,000 | .4/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | .5/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 650 | 800 | 895 | 718 |
| 34,000 | 12,000 | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 625 | 775 | 920 | 735 |
| 35,000 | 12,100 | .3/.7 | .3/.6 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 575 | 725 | 945 | 753 |
| 36,000 | 12,100 | .2/.7 | .2/.6 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | | .4/.7 | .3/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | | 550 | 675 | 975 | 770 |
| 37,000 | 12,100 | .2/.7 | .2/.5 | .1/.4 | .0/.2 | .0/.1 | | | | .3/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | | 500 | 625 | 1,000 | 788 |
| 38,000 | 12,100 | .1/.6 | .1/.5 | .1/.4 | .0/.2 | .0/.1 | | | | .3/.7 | .2/.5 | .1/.4 | .0/.2 | .0/.2 | .0/.1 | | | 450 | 575 | 1,030 | 805 |
| 39,000 | 12,100 | .1/.6 | .1/.5 | .1/.3 | .0/.2 | .0/.1 | | | | .2/.6 | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 400 | 525 | 1,055 | 823 |
| 40,000 | 12,100 | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | .2/.6 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 350 | 475 | 1,080 | 840 |

LFR 1

Figure 5.2e(1).

PROTECTED Personnel Targets
Large Free Rocket

HIGH Airburst

Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|--|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | Prompt | Delayed | | |
| 7,000 | 11,600 | .9/.9 | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 800 | 1,125 | 190 | 611 |
| 8,000 | 11,600 | .9/.9 | .9/.9 | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 775 | 1,100 | 220 | 628 |
| 9,000 | 11,600 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 750 | 1,075 | 245 | 646 |
| 10,000 | 11,600 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.3 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 700 | 1,050 | 270 | 663 |
| 11,000 | 11,600 | .9/.9 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 675 | 1,050 | 300 | 681 |
| 12,000 | 11,600 | .9/.9 | .8/.9 | .6/.7 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 650 | 1,025 | 325 | 698 |
| 13,000 | 11,700 | .9/.9 | .7/.9 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 625 | 1,000 | 355 | 716 |
| 14,000 | 11,700 | .8/.9 | .6/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 575 | 975 | 380 | 733 |
| 15,000 | 11,700 | .8/.9 | .6/.8 | .4/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 525 | 950 | 405 | 751 |
| 16,000 | 11,700 | .7/.9 | .5/.8 | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 475 | 925 | 435 | 768 |
| 17,000 | 11,700 | .6/.8 | .4/.7 | .2/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | .8/.9 | .5/.7 | .3/.4 | .1/.3 | .1/.2 | .1/.1 | | | 425 | 900 | 460 | 786 |
| 18,000 | 11,700 | .5/.8 | .3/.7 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .7/.9 | .5/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 375 | 875 | 490 | 803 |
| 19,000 | 11,800 | .3/.7 | .2/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .7/.9 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 275 | 825 | 515 | 821 |
| 20,000 | 11,800 | .1/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | | 150 | 800 | 540 | 838 |
| 21,000 | 11,800 | .0/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .6/.8 | .4/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | | 0 | 775 | 570 | 856 |
| 22,000 | 11,800 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | .6/.8 | .3/.6 | .2/.4 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 725 | 595 | 873 |
| 23,000 | 11,800 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | .5/.8 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 700 | 625 | 891 |
| 24,000 | 11,800 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | .5/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | | 0 | 650 | 650 | 908 |
| 25,000 | 11,900 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.1 | | | | 0 | 600 | 675 | 926 |
| 26,000 | 11,900 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | .4/.7 | .2/.5 | .1/.3 | .0/.2 | .0/.1 | | | | 0 | 525 | 705 | 943 |
| 27,000 | 11,900 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | .3/.7 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 475 | 730 | 961 |
| 28,000 | 11,900 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 400 | 760 | 978 |
| 29,000 | 11,900 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .2/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 300 | 785 | 996 |
| 30,000 | 12,000 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 125 | 810 | 1,013 |
| 31,000 | 12,000 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 840 | 1,031 |
| 32,000 | 12,000 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 0 | 865 | 1,048 |
| 33,000 | 12,000 | .0/.3 | .0/.2 | .0/.1 | | | | | | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 895 | 1,066 |
| 34,000 | 12,000 | .0/.3 | .0/.2 | .0/.1 | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 920 | 1,083 |
| 35,000 | 12,000 | .0/.3 | .0/.2 | .0/.1 | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 945 | 1,101 |
| 36,000 | 12,100 | .0/.3 | .0/.2 | .0/.1 | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 975 | 1,118 |
| 37,000 | 12,100 | .0/.3 | .0/.2 | .0/.1 | | | | | | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,000 | 1,136 |
| 38,000 | 12,100 | .0/.2 | .0/.1 | | | | | | | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,030 | 1,153 |
| 39,000 | 12,100 | .0/.2 | .0/.1 | | | | | | | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,055 | 1,171 |
| 40,000 | 12,100 | .0/.2 | .0/.1 | | | | | | | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 0 | 1,080 | 1,188 |

Figure 5.2e(2).

**PROTECTED Personnel Targets
Large Free Rocket**

HOTEL/100 KT

**IMPACT Burst
Produces fallout**

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d ₀
(meters) | Height
of
burst
(meters) |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-----------------------------------|
| | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | Prompt | Delayed | | |
| 7,000 | 6,600 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .6/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 190 | 0 |
| 8,000 | 6,600 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .6/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 220 | 0 |
| 9,000 | 6,600 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .6/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 245 | 0 |
| 10,000 | 6,600 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .6/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 270 | 0 |
| 11,000 | 6,600 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .6/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 300 | 0 |
| 12,000 | 6,700 | .9/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .6/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 325 | 0 |
| 13,000 | 6,700 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 355 | 0 |
| 14,000 | 6,700 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 380 | 0 |
| 15,000 | 6,700 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 405 | 0 |
| 16,000 | 6,700 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .8/.9 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 435 | 0 |
| 17,000 | 6,700 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 460 | 0 |
| 18,000 | 6,800 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 490 | 0 |
| 19,000 | 6,800 | .8/.9 | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 515 | 0 |
| 20,000 | 6,800 | .8/.9 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 540 | 0 |
| 21,000 | 6,800 | .8/.9 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 570 | 0 |
| 22,000 | 6,800 | .7/.9 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 595 | 0 |
| 23,000 | 6,900 | .7/.9 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 625 | 0 |
| 24,000 | 6,900 | .7/.9 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 650 | 0 |
| 25,000 | 6,900 | .7/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 675 | 0 |
| 26,000 | 6,900 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 705 | 0 |
| 27,000 | 6,900 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 730 | 0 |
| 28,000 | 6,900 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 760 | 0 |
| 29,000 | 7,000 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 785 | 0 |
| 30,000 | 7,000 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 810 | 0 |
| 31,000 | 7,000 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 840 | 0 |
| 32,000 | 7,000 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 865 | 0 |
| 33,000 | 7,000 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 895 | 0 |
| 34,000 | 7,000 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 920 | 0 |
| 35,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 945 | 0 |
| 36,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 975 | 0 |
| 37,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 1,000 | 0 |
| 38,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .6/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 1,030 | 0 |
| 39,000 | 7,100 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .6/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 1,055 | 0 |
| 40,000 | 7,100 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.2e(3).

LFR 1

MATERIEL Targets
Large Free Rocket
LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|--|-----------------------------------|--|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | | | Prob min
R _D
(meters) |
| | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | | | |
| 7,000 | 3,400 | .8/.9 | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 400 | .2/.7 | .2/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | 75 | 190 | 175 |
| 8,000 | 3,400 | .8/.9 | .6/.8 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 375 | .0/.6 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 25 | 220 | 192 |
| 9,000 | 3,400 | .6/.8 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 275 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 245 | 210 |
| 10,000 | 3,400 | .4/.8 | .2/.7 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | 175 | .0/.4 | .0/.2 | .0/.1 | | | | | | 0 | 270 | 227 |
| 11,000 | 3,400 | .1/.7 | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 100 | .0/.4 | .0/.2 | .0/.1 | | | | | | 0 | 300 | 245 |
| 12,000 | 3,500 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 50 | .0/.2 | .0/.1 | | | | | | | 0 | 325 | 262 |
| 13,000 | 3,500 | .0/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 355 | 280 |
| 14,000 | 3,500 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 380 | 297 |
| 15,000 | 3,500 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.1 | | | | | | | | 0 | 405 | 315 |
| 16,000 | 3,500 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 435 | 332 |
| 17,000 | 3,500 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 460 | 350 |
| 18,000 | 3,600 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 490 | 367 |
| 19,000 | 3,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 515 | 385 |
| 20,000 | 3,600 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 540 | 402 |
| 21,000 | 3,600 | .0/.2 | .0/.1 | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 570 | 420 |
| 22,000 | 3,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 595 | 437 |
| 23,000 | 3,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 625 | 455 |
| 24,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 650 | 472 |
| 25,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 675 | 490 |
| 26,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 705 | 507 |
| 27,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 730 | 525 |
| 28,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 760 | 542 |
| 29,000 | 3,700 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 785 | 560 |
| 30,000 | 3,800 | | | | | | | | | 0 | | | | | | | | | 0 | 810 | 577 |
| 31,000 | 3,800 | | | | | | | | | 0 | | | | | | | | | 0 | 840 | 595 |
| 32,000 | 3,800 | | | | | | | | | 0 | | | | | | | | | 0 | 865 | 612 |
| 33,000 | 3,800 | | | | | | | | | 0 | | | | | | | | | 0 | 895 | 630 |
| 34,000 | 3,800 | | | | | | | | | 0 | | | | | | | | | 0 | 920 | 647 |
| 35,000 | 3,800 | | | | | | | | | 0 | | | | | | | | | 0 | 945 | 665 |
| 36,000 | 3,900 | | | | | | | | | 0 | | | | | | | | | 0 | 975 | 682 |
| 37,000 | 3,900 | | | | | | | | | 0 | | | | | | | | | 0 | 1,000 | 700 |
| 38,000 | 3,900 | | | | | | | | | 0 | | | | | | | | | 0 | 1,030 | 717 |
| 39,000 | 3,900 | | | | | | | | | 0 | | | | | | | | | 0 | 1,055 | 735 |
| 40,000 | 3,900 | | | | | | | | | 0 | | | | | | | | | 0 | 1,080 | 752 |

Figure 5.3a(1).

MATERIEL Targets
Large Free Rocket

DELTA/5 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|--|-------------------------------|------------------------|--|--|--|--|--|--|---|-----------------------------------|-------------------------------|--|
| | | WHEELED VEHICLES | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | | Prob min
R_D
(meters) | |
| | | 200 | 300 | 400 | 500 | 600 | 700 | 800 | | | 100 | | | | | | | | | | |
| 7,000 | 3,400 | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 50 | .0/.1 | | | | | | | 0 | 190 | 303 | |
| 8,000 | 3,400 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.1 | | | | | | | 0 | 220 | 320 | |
| 9,000 | 3,400 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | 0 | 245 | 338 | |
| 10,000 | 3,400 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | 0 | 270 | 355 | |
| 11,000 | 3,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | 0 | 300 | 373 | |
| 12,000 | 3,400 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | 0 | 325 | 390 | |
| 13,000 | 3,500 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 355 | 408 | |
| 14,000 | 3,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 380 | 425 | |
| 15,000 | 3,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 405 | 443 | |
| 16,000 | 3,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 435 | 460 | |
| 17,000 | 3,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 460 | 478 | |
| 18,000 | 3,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 490 | 495 | |
| 19,000 | 3,600 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 515 | 513 | |
| 20,000 | 3,600 | | | | | | | | | 0 | | | | | | | | 0 | 540 | 530 | |
| 21,000 | 3,600 | | | | | | | | | 0 | | | | | | | | 0 | 570 | 548 | |
| 22,000 | 3,600 | | | | | | | | | 0 | | | | | | | | 0 | 595 | 565 | |
| 23,000 | 3,600 | | | | | | | | | 0 | | | | | | | | 0 | 625 | 583 | |
| 24,000 | 3,600 | | | | | | | | | 0 | | | | | | | | 0 | 650 | 600 | |
| 25,000 | 3,700 | | | | | | | | | 0 | | | | | | | | 0 | 675 | 618 | |
| 26,000 | 3,700 | | | | | | | | | 0 | | | | | | | | 0 | 705 | 635 | |
| 27,000 | 3,700 | | | | | | | | | 0 | | | | | | | | 0 | 730 | 653 | |
| 28,000 | 3,700 | | | | | | | | | 0 | | | | | | | | 0 | 760 | 670 | |
| 29,000 | 3,700 | | | | | | | | | 0 | | | | | | | | 0 | 785 | 688 | |
| 30,000 | 3,700 | | | | | | | | | 0 | | | | | | | | 0 | 810 | 705 | |
| 31,000 | 3,800 | | | | | | | | | 0 | | | | | | | | 0 | 840 | 723 | |
| 32,000 | 3,800 | | | | | | | | | 0 | | | | | | | | 0 | 865 | 740 | |
| 33,000 | 3,800 | | | | | | | | | 0 | | | | | | | | 0 | 895 | 758 | |
| 34,000 | 3,800 | | | | | | | | | 0 | | | | | | | | 0 | 920 | 775 | |
| 35,000 | 3,800 | | | | | | | | | 0 | | | | | | | | 0 | 945 | 793 | |
| 36,000 | 3,800 | | | | | | | | | 0 | | | | | | | | 0 | 975 | 810 | |
| 37,000 | 3,900 | | | | | | | | | 0 | | | | | | | | 0 | 1,000 | 828 | |
| 38,000 | 3,900 | | | | | | | | | 0 | | | | | | | | 0 | 1,030 | 845 | |
| 39,000 | 3,900 | | | | | | | | | 0 | | | | | | | | 0 | 1,055 | 863 | |
| 40,000 | 3,900 | | | | | | | | | 0 | | | | | | | | 0 | 1,080 | 880 | |

LFR 1

Figure 5.3a(2).

MATERIEL Targets Large Free Rocket

IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) | |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|--|-----------------------------------|--|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | | | Prob min
R _D
(meters) |
| | | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | | | |
| 7,000 | 2,200 | .8/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 225 | 190 | 0 |
| 8,000 | 2,200 | .8/.9 | .6/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .5/.8 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 225 | 220 | 0 |
| 9,000 | 2,200 | .7/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .4/.7 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 225 | 245 | 0 |
| 10,000 | 2,300 | .6/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | 225 | 270 | 0 |
| 11,000 | 2,300 | .6/.8 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .2/.6 | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | 225 | 300 | 0 |
| 12,000 | 2,300 | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .2/.6 | .2/.5 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | 225 | 325 | 0 |
| 13,000 | 2,300 | .4/.8 | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .1/.5 | .1/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 225 | 355 | 0 |
| 14,000 | 2,300 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .0/.5 | .1/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225 | 380 | 0 |
| 15,000 | 2,300 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .0/.5 | .0/.4 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225 | 405 | 0 |
| 16,000 | 2,400 | .2/.7 | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .0/.4 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225 | 435 | 0 |
| 17,000 | 2,400 | .2/.6 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .0/.4 | .0/.4 | .0/.3 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225 | 460 | 0 |
| 18,000 | 2,400 | .1/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | 225 | 490 | 0 |
| 19,000 | 2,400 | .1/.6 | .1/.5 | .2/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | 225 | 515 | 0 |
| 20,000 | 2,400 | .1/.5 | .1/.5 | .1/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .1/.2 | 225 | 540 | 0 |
| 21,000 | 2,400 | .0/.5 | .1/.5 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225 | 570 | 0 |
| 22,000 | 2,500 | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225 | 595 | 0 |
| 23,000 | 2,500 | .0/.5 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | 225 | 625 | 0 |
| 24,000 | 2,500 | .0/.4 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225 | 650 | 0 |
| 25,000 | 2,500 | .0/.4 | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225 | 675 | 0 |
| 26,000 | 2,500 | .0/.4 | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225 | 705 | 0 |
| 27,000 | 2,600 | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225 | 730 | 0 |
| 28,000 | 2,600 | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 225 | 760 | 0 |
| 29,000 | 2,600 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 225 | 785 | 0 |
| 30,000 | 2,600 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.1 | 325 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 225 | 810 | 0 |
| 31,000 | 2,600 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .1/.2 | .1/.1 | 325 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 225 | 840 | 0 |
| 32,000 | 2,600 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 325 | .0/.2 | .0/.2 | .0/.1 | | | | | | 225 | 865 | 0 |
| 33,000 | 2,700 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 325 | .0/.2 | .0/.1 | | | | | | | 225 | 895 | 0 |
| 34,000 | 2,700 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 325 | .0/.1 | | | | | | | | 225 | 920 | 0 |
| 35,000 | 2,700 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 325 | .0/.1 | | | | | | | | 225 | 945 | 0 |
| 36,000 | 2,700 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 325 | .0/.1 | | | | | | | | 225 | 975 | 0 |
| 37,000 | 2,700 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 325 | .0/.1 | | | | | | | | 225 | 1,000 | 0 |
| 38,000 | 2,700 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 325 | .0/.1 | | | | | | | | 225 | 1,030 | 0 |
| 39,000 | 2,800 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 325 | .0/.1 | | | | | | | | 225 | 1,055 | 0 |
| 40,000 | 2,800 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 325 | .0/.1 | | | | | | | | 225 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.3a(3).

MATERIEL Targets
Large Free Rocket

ECHO/10 KT

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-------|---|-----------------------------------|-------------------------------|--|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | | Prob min
R_D
(meters) | |
| | | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 1,200 | 1,300 | | 200 | 300 | 400 | 500 | 600 | 700 | 800 | | | | |
| 7,000 | 4,200 | .7/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 575 | .5/.8 | .3/.7 | .2/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | 175 | 190 | 188 | |
| 8,000 | 4,200 | .7/.8 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 550 | .3/.7 | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 150 | 220 | 205 | |
| 9,000 | 4,200 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | 525 | .2/.6 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 100 | 245 | 223 | |
| 10,000 | 4,300 | .6/.7 | .5/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 500 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 50 | 270 | 240 | |
| 11,000 | 4,300 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 450 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 0 | 300 | 258 | |
| 12,000 | 4,300 | .3/.6 | .2/.5 | .2/.4 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | 275 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 325 | 275 | |
| 13,000 | 4,300 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 200 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 355 | 293 | |
| 14,000 | 4,300 | .0/.5 | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 125 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 380 | 310 | |
| 15,000 | 4,300 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 75 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 405 | 328 | |
| 16,000 | 4,300 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 0 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 435 | 345 | |
| 17,000 | 4,400 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 460 | 363 | |
| 18,000 | 4,400 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.2 | .0/.1 | | | | | | 0 | 490 | 380 | |
| 19,000 | 4,400 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.2 | .0/.1 | | | | | | 0 | 515 | 398 | |
| 20,000 | 4,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | 0 | 540 | 415 | |
| 21,000 | 4,400 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | 0 | 570 | 433 | |
| 22,000 | 4,500 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | 0 | 595 | 450 | |
| 23,000 | 4,500 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | 0 | 625 | 468 | |
| 24,000 | 4,500 | .0/.2 | .0/.1 | | | | | | | 0 | .0/.1 | | | | | | | 0 | 650 | 485 | |
| 25,000 | 4,500 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 675 | 503 | |
| 26,000 | 4,500 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 705 | 520 | |
| 27,000 | 4,500 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 730 | 538 | |
| 28,000 | 4,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 760 | 555 | |
| 29,000 | 4,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 785 | 573 | |
| 30,000 | 4,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 810 | 590 | |
| 31,000 | 4,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 840 | 608 | |
| 32,000 | 4,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 865 | 625 | |
| 33,000 | 4,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 895 | 643 | |
| 34,000 | 4,700 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 920 | 660 | |
| 35,000 | 4,700 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 945 | 678 | |
| 36,000 | 4,700 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 975 | 695 | |
| 37,000 | 4,700 | | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 1,000 | 713 | |
| 38,000 | 4,700 | | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 1,030 | 730 | |
| 39,000 | 4,700 | | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 1,055 | 748 | |
| 40,000 | 4,800 | | | | | | | | | 0 | .0/.1 | | | | | | | 0 | 1,080 | 765 | |

Figure 5.3b(1).

LFR 1

¹Large Free Rocket.

MATERIEL Targets
Large Free Rocket

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius; the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|--|--|--|--|--|-------------------------------|---|-----------------------------------|-----|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | Prob min
R_D
(meters) | | | |
| | | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | | 200 | | | | | | | | | |
| 7,000 | 4,200 | .2/.7 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | 200 | .0/.1 | | | | | | | 0 | 190 | 350 |
| 8,000 | 4,200 | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 125 | .0/.1 | | | | | | | 0 | 220 | 367 |
| 9,000 | 4,200 | .0/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 75 | .0/.1 | | | | | | | 0 | 245 | 385 |
| 10,000 | 4,200 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.1 | | | | | | | 0 | 270 | 402 |
| 11,000 | 4,300 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | 0 | 300 | 420 |
| 12,000 | 4,300 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | 0 | 325 | 437 |
| 13,000 | 4,300 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | | | | | | | | 0 | 355 | 455 |
| 14,000 | 4,300 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | 0 | 380 | 472 |
| 15,000 | 4,300 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 405 | 490 |
| 16,000 | 4,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 435 | 507 |
| 17,000 | 4,400 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 460 | 525 |
| 18,000 | 4,400 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 490 | 542 |
| 19,000 | 4,400 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 515 | 560 |
| 20,000 | 4,400 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 540 | 577 |
| 21,000 | 4,400 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 570 | 595 |
| 22,000 | 4,400 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 595 | 612 |
| 23,000 | 4,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 625 | 630 |
| 24,000 | 4,500 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 650 | 647 |
| 25,000 | 4,500 | | | | | | | | | 0 | | | | | | | | 0 | 675 | 665 |
| 26,000 | 4,500 | | | | | | | | | 0 | | | | | | | | 0 | 705 | 682 |
| 27,000 | 4,500 | | | | | | | | | 0 | | | | | | | | 0 | 730 | 700 |
| 28,000 | 4,500 | | | | | | | | | 0 | | | | | | | | 0 | 760 | 717 |
| 29,000 | 4,600 | | | | | | | | | 0 | | | | | | | | 0 | 785 | 735 |
| 30,000 | 4,600 | | | | | | | | | 0 | | | | | | | | 0 | 810 | 752 |
| 31,000 | 4,600 | | | | | | | | | 0 | | | | | | | | 0 | 840 | 770 |
| 32,000 | 4,600 | | | | | | | | | 0 | | | | | | | | 0 | 865 | 787 |
| 33,000 | 4,600 | | | | | | | | | 0 | | | | | | | | 0 | 895 | 805 |
| 34,000 | 4,700 | | | | | | | | | 0 | | | | | | | | 0 | 920 | 822 |
| 35,000 | 4,700 | | | | | | | | | 0 | | | | | | | | 0 | 945 | 840 |
| 36,000 | 4,700 | | | | | | | | | 0 | | | | | | | | 0 | 975 | 857 |
| 37,000 | 4,700 | | | | | | | | | 0 | | | | | | | | 0 | 1,000 | 875 |
| 38,000 | 4,700 | | | | | | | | | 0 | | | | | | | | 0 | 1,030 | 892 |
| 39,000 | 4,700 | | | | | | | | | 0 | | | | | | | | 0 | 1,055 | 910 |
| 40,000 | 4,800 | | | | | | | | | 0 | | | | | | | | 0 | 1,080 | 927 |

Figure 5.3b(2).

MATERIEL Targets Large Free Rocket

ECHO/10 KT

IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | Offset
distance
d ₀
(meters) | Height
of
burst
(meters) | |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|--|-----------------------------------|--|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | | | Prob min
R _D
(meters) |
| | | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | | | |
| 7,000 | 2,700 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | 300 | 190 | 0 |
| 8,000 | 2,700 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .8/.9 | .6/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 220 | 0 |
| 9,000 | 2,800 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 245 | 0 |
| 10,000 | 2,800 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .7/.9 | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 270 | 0 |
| 11,000 | 2,800 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .6/.8 | .4/.5 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 300 | 0 |
| 12,000 | 2,800 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .5/.8 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 325 | 0 |
| 13,000 | 2,800 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .4/.8 | .3/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 355 | 0 |
| 14,000 | 2,900 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .2/.7 | .2/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 380 | 0 |
| 15,000 | 2,900 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .2/.7 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 405 | 0 |
| 16,000 | 2,900 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .1/.6 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 435 | 0 |
| 17,000 | 2,900 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.6 | .1/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 300 | 460 | 0 |
| 18,000 | 2,900 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.6 | .1/.5 | .1/.5 | .1/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 490 | 0 |
| 19,000 | 2,900 | .4/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.5 | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 515 | 0 |
| 20,000 | 3,000 | .3/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.5 | .0/.5 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 540 | 0 |
| 21,000 | 3,000 | .3/.6 | .3/.5 | .3/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.5 | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 570 | 0 |
| 22,000 | 3,000 | .2/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.5 | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 595 | 0 |
| 23,000 | 3,000 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.4 | .0/.4 | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 300 | 625 | 0 |
| 24,000 | 3,000 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 300 | 650 | 0 |
| 25,000 | 3,000 | .2/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 450 | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.1 | 300 | 675 | 0 |
| 26,000 | 3,100 | .1/.5 | .1/.4 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.1 | 300 | 705 | 0 |
| 27,000 | 3,100 | .1/.5 | .1/.4 | .1/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .1/.2 | .1/.1 | 300 | 730 | 0 |
| 28,000 | 3,100 | .1/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .1/.2 | .1/.1 | 300 | 760 | 0 |
| 29,000 | 3,100 | .1/.4 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 300 | 785 | 0 |
| 30,000 | 3,100 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 300 | 810 | 0 |
| 31,000 | 3,200 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 300 | 840 | 0 |
| 32,000 | 3,200 | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 300 | 865 | 0 |
| 33,000 | 3,200 | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 300 | 895 | 0 |
| 34,000 | 3,200 | .0/.4 | .0/.3 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 300 | 920 | 0 |
| 35,000 | 3,200 | .0/.4 | .0/.3 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 300 | 945 | 0 |
| 36,000 | 3,200 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 300 | 975 | 0 |
| 37,000 | 3,300 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 300 | 1,000 | 0 |
| 38,000 | 3,300 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | 300 | 1,030 | 0 |
| 39,000 | 3,300 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .1/.2 | .1/.2 | .1/.2 | 450 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 300 | 1,055 | 0 |
| 40,000 | 3,300 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .1/.2 | .1/.1 | 450 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | 300 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.3b(3).

LFR 1

MATERIEL Targets
Large Free Rocket

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|-------|--|-----------------------------------|--|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | | | Prob min
R _D
(meters) |
| | | 500 | 700 | 900 | 1,100 | 1,300 | 1,500 | 1,700 | 1,900 | | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | | | |
| 7,000 | 6,000 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 800 | .9/.9 | .8/.9 | .6/.8 | .4/.7 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | 325 | 190 | 205 |
| 8,000 | 6,000 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 775 | .8/.9 | .6/.9 | .4/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | 275 | 220 | 222 |
| 9,000 | 6,100 | .9/.9 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 775 | .6/.9 | .5/.8 | .3/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | 225 | 245 | 240 |
| 10,000 | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 750 | .4/.8 | .3/.7 | .2/.6 | .1/.5 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | 176 | 270 | 257 |
| 11,000 | 6,100 | .9/.9 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 700 | .2/.7 | .2/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 150 | 300 | 275 |
| 12,000 | 6,100 | .8/.9 | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 675 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 100 | 325 | 292 |
| 13,000 | 6,100 | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | 650 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 50 | 355 | 310 |
| 14,000 | 6,100 | .7/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 0 | 380 | 327 |
| 15,000 | 6,200 | .6/.8 | .4/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 375 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 405 | 345 |
| 16,000 | 6,200 | .4/.8 | .2/.7 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | 435 | 362 |
| 17,000 | 6,200 | .2/.7 | .1/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 225 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 460 | 380 |
| 18,000 | 6,200 | .1/.7 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 150 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 490 | 397 |
| 19,000 | 6,200 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 75 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 515 | 415 |
| 20,000 | 6,200 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 540 | 432 |
| 21,000 | 6,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 570 | 450 |
| 22,000 | 6,300 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 595 | 467 |
| 23,000 | 6,300 | .0/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 0 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 625 | 485 |
| 24,000 | 6,300 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | 650 | 502 |
| 25,000 | 6,300 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 675 | 520 |
| 26,000 | 6,300 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 705 | 537 |
| 27,000 | 6,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 730 | 555 |
| 28,000 | 6,400 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 760 | 572 |
| 29,000 | 6,400 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 785 | 590 |
| 30,000 | 6,400 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 810 | 607 |
| 31,000 | 6,400 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 840 | 625 |
| 32,000 | 6,400 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 865 | 642 |
| 33,000 | 6,500 | .0/.2 | .0/.1 | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 895 | 660 |
| 34,000 | 6,500 | .0/.2 | .0/.1 | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 920 | 677 |
| 35,000 | 6,500 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 945 | 695 |
| 36,000 | 6,500 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 975 | 712 |
| 37,000 | 6,500 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 1,000 | 730 |
| 38,000 | 6,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 1,030 | 747 |
| 39,000 | 6,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 1,055 | 765 |
| 40,000 | 6,600 | .0/.1 | | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 1,080 | 782 |

Figure 5.3c(1).

MATERIEL Targets
Large Free Rocket

FOXTROT/20 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|--|--|--|-----------------------------------|--|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | | Prob min
R _D
(meters) |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | | 200 | 250 | 300 | 350 | 400 | | | | | |
| 7,000 | 5,900 | .9/.9 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | 450 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | .0/.1 | | | 0 | 190 | 409 |
| 8,000 | 6,000 | .6/.9 | .3/.8 | .1/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | 325 | .0/.3 | .0/.2 | .0/.1 | .0/.1 | | | | 0 | 220 | 426 |
| 9,000 | 6,000 | .4/.8 | .2/.7 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 250 | .0/.2 | .0/.1 | .0/.1 | .0/.1 | | | | 0 | 245 | 443 |
| 10,000 | 6,600 | .2/.7 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 175 | .0/.2 | .0/.1 | .0/.1 | .0/.1 | | | | 0 | 270 | 461 |
| 11,000 | 6,000 | .1/.6 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 125 | .0/.1 | .0/.1 | .0/.1 | | | | | 0 | 300 | 479 |
| 12,000 | 6,000 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 50 | .0/.1 | .0/.1 | | | | | | 0 | 325 | 496 |
| 13,000 | 6,100 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | 0 | 355 | 514 |
| 14,000 | 6,100 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | 0 | 380 | 531 |
| 15,000 | 6,100 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | 0 | 405 | 549 |
| 16,000 | 6,100 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | 0 | 435 | 566 |
| 17,000 | 6,100 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | 0 | 460 | 584 |
| 18,000 | 6,100 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | 0 | 490 | 601 |
| 19,000 | 6,200 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | 0 | 515 | 619 |
| 20,000 | 6,200 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 540 | 636 |
| 21,000 | 6,200 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 570 | 654 |
| 22,000 | 6,200 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 595 | 671 |
| 23,000 | 6,200 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 625 | 689 |
| 24,000 | 6,200 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 650 | 706 |
| 25,000 | 6,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 675 | 724 |
| 26,000 | 6,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 705 | 741 |
| 27,000 | 6,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 730 | 759 |
| 28,000 | 6,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 760 | 776 |
| 29,000 | 6,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 785 | 794 |
| 30,000 | 6,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 810 | 811 |
| 31,000 | 6,400 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 840 | 829 |
| 32,000 | 6,400 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 865 | 846 |
| 33,000 | 6,400 | | | | | | | | | 0 | | | | | | | | 0 | 895 | 864 |
| 34,000 | 6,500 | | | | | | | | | 0 | | | | | | | | 0 | 920 | 881 |
| 35,000 | 6,500 | | | | | | | | | 0 | | | | | | | | 0 | 945 | 899 |
| 36,000 | 6,500 | | | | | | | | | 0 | | | | | | | | 0 | 975 | 916 |
| 37,000 | 6,500 | | | | | | | | | 0 | | | | | | | | 0 | 1,000 | 934 |
| 38,000 | 6,500 | | | | | | | | | 0 | | | | | | | | 0 | 1,030 | 951 |
| 39,000 | 6,600 | | | | | | | | | 0 | | | | | | | | 0 | 1,055 | 969 |
| 40,000 | 6,600 | | | | | | | | | 0 | | | | | | | | 0 | 1,080 | 986 |

Figure 5.3c(2)

LFR 1

MATERIEL Targets
Large Free Rocket

IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) | |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|--|--|-----------------------------------|-------|
| | | WHEELED VEHICLES | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | Prob min
R _D
(meters) | | | |
| | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | | | | 1,000 |
| 7,000 | 3,600 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 190 | 0 |
| 8,000 | 3,600 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .7/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 220 | 0 |
| 9,000 | 3,600 | .8/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 245 | 0 |
| 10,000 | 3,600 | .8/.9 | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 270 | 0 |
| 11,000 | 3,600 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 300 | 0 |
| 12,000 | 3,600 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .5/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 325 | 0 |
| 13,000 | 3,700 | .7/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .5/.8 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 355 | 0 |
| 14,000 | 3,700 | .7/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 380 | 0 |
| 15,000 | 3,700 | .7/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 405 | 0 |
| 16,000 | 3,700 | .6/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 435 | 0 |
| 17,000 | 3,700 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 460 | 0 |
| 18,000 | 3,700 | .6/.8 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .3/.6 | .3/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 490 | 0 |
| 19,000 | 3,800 | .5/.8 | .4/.6 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .2/.6 | .3/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 515 | 0 |
| 20,000 | 3,800 | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 540 | 0 |
| 21,000 | 3,800 | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 570 | 0 |
| 22,000 | 3,800 | .4/.8 | .4/.6 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .1/.5 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | 595 | 0 |
| 23,000 | 3,800 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 575 | .1/.5 | .1/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 400 | 625 | 0 |
| 24,000 | 3,900 | .4/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .1/.5 | .1/.4 | .1/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 400 | 650 | 0 |
| 25,000 | 3,900 | .4/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | 400 | 675 | 0 |
| 26,000 | 3,900 | .3/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 400 | 705 | 0 |
| 27,000 | 3,900 | .3/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.4 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 400 | 730 | 0 |
| 28,000 | 3,900 | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 400 | 760 | 0 |
| 29,000 | 3,900 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.4 | .0/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 400 | 785 | 0 |
| 30,000 | 4,000 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.4 | .0/.4 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 400 | 810 | 0 |
| 31,000 | 4,000 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.4 | .0/.3 | .0/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 400 | 840 | 0 |
| 32,000 | 4,000 | .1/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 400 | 865 | 0 |
| 33,000 | 4,000 | .1/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 575 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 400 | 895 | 0 |
| 34,000 | 4,000 | .1/.5 | .1/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .1/.1 | 400 | 920 | 0 |
| 35,000 | 4,000 | .1/.5 | .1/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .1/.2 | .1/.1 | 400 | 945 | 0 |
| 36,000 | 4,100 | .1/.5 | .1/.4 | .1/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .1/.2 | .1/.1 | 400 | 975 | 0 |
| 37,000 | 4,100 | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .1/.1 | 400 | 1,000 | 0 |
| 38,000 | 4,100 | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 400 | 1,030 | 0 |
| 39,000 | 4,100 | .0/.5 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 400 | 1,055 | 0 |
| 40,000 | 4,100 | .0/.5 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 400 | 1,055 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.3c(3).

MATERIEL Targets
Large Free Rocket

GOLF/50 KT

LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d ₀
(meters) | Height
of
burst
(meters) | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|--|-----------------------------------|--|-------|
| | | WHEELED VEHICLES | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | | Prob min
R _D
(meters) | |
| | | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | | | 1,800 |
| 7,000 | 8,900 | .9/.9 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,225 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 625 | 190 | 234 |
| 8,000 | 8,900 | .9/.9 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,200 | .9/.9 | .7/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 575 | 220 | 251 |
| 9,000 | 8,900 | .9/.9 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,175 | .8/.9 | .6/.8 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 500 | 245 | 269 |
| 10,000 | 8,900 | .9/.9 | .9/.9 | .8/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 1,150 | .8/.9 | .5/.8 | .3/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 450 | 270 | 286 |
| 11,000 | 8,900 | .9/.9 | .9/.9 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 1,125 | .7/.9 | .4/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.1 | | 400 | 300 | 304 |
| 12,000 | 8,900 | .9/.9 | .9/.9 | .7/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | 1,100 | .5/.8 | .3/.7 | .1/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | 350 | 325 | 321 |
| 13,000 | 9,000 | .9/.9 | .9/.9 | .7/.8 | .4/.5 | .2/.4 | .1/.2 | .1/.2 | .1/.1 | 1,075 | .4/.8 | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 300 | 355 | 339 |
| 14,000 | 9,000 | .9/.9 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,050 | .3/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 250 | 380 | 356 |
| 15,000 | 9,000 | .9/.9 | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,025 | .2/.7 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 200 | 405 | 374 |
| 16,000 | 9,000 | .9/.9 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 1,000 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 150 | 435 | 391 |
| 17,000 | 9,000 | .9/.9 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 950 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 100 | 460 | 409 |
| 18,000 | 9,000 | .9/.9 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 900 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 50 | 490 | 426 |
| 19,000 | 9,100 | .9/.9 | .7/.9 | .4/.7 | .2/.4 | .1/.3 | .1/.2 | .0/.1 | | 825 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 515 | 444 |
| 20,000 | 9,100 | .9/.9 | .5/.8 | .2/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | 600 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 540 | 461 |
| 21,000 | 9,100 | .8/.9 | .3/.8 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | 475 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 570 | 479 |
| 22,000 | 9,100 | .6/.9 | .2/.8 | .1/.6 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | 400 | .0/.4 | .0/.2 | .0/.1 | | | | | | 0 | 595 | 496 |
| 23,000 | 9,100 | .4/.8 | .1/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 325 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 625 | 514 |
| 24,000 | 9,100 | .2/.8 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 250 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 650 | 531 |
| 25,000 | 9,200 | .1/.8 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 175 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 675 | 549 |
| 26,000 | 9,200 | .0/.7 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 100 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 705 | 566 |
| 27,000 | 9,200 | .0/.7 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | | 25 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | 730 | 584 |
| 28,000 | 9,200 | .0/.7 | .0/.4 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 760 | 601 |
| 29,000 | 9,200 | .0/.6 | .0/.4 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 785 | 619 |
| 30,000 | 9,300 | .0/.6 | .0/.4 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 810 | 636 |
| 31,000 | 9,300 | .0/.6 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 840 | 654 |
| 32,000 | 9,300 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 865 | 671 |
| 33,000 | 9,300 | .0/.5 | .0/.3 | .0/.1 | | | | | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 895 | 689 |
| 34,000 | 9,300 | .0/.5 | .0/.3 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 920 | 706 |
| 35,000 | 9,300 | .0/.4 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 945 | 724 |
| 36,000 | 9,400 | .0/.4 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 975 | 741 |
| 37,000 | 9,400 | .0/.4 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 1,000 | 759 |
| 38,000 | 9,400 | .0/.3 | .0/.1 | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 1,030 | 776 |
| 39,000 | 9,400 | .0/.3 | .0/.1 | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 1,055 | 794 |
| 40,000 | 9,400 | .0/.3 | .0/.1 | | | | | | | 0 | .0/.1 | | | | | | | | 0 | 1,080 | 811 |

Figure 5.3d(1).

LFR 1

MATERIEL Targets
Large Free Rocket

HIGH Airburst
 Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|--|-------------------------------|------------------------|-------|--|--|--|--|---|-----------------------------------|-------------------------------|-------|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | |
| | | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | | 400 | 600 | | | | | | | | |
| 7,000 | 8,800 | .9/.9 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 950 | .0/.2 | .0/.1 | | | | | | 100 | 190 | 510 |
| 8,000 | 8,900 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .1/.3 | .1/.2 | .1/.1 | | 900 | .0/.2 | .0/.1 | | | | | | 50 | 220 | 527 |
| 9,000 | 8,900 | .9/.9 | .8/.9 | .5/.6 | .2/.4 | .1/.2 | .1/.2 | .0/.1 | | 775 | .0/.2 | .0/.1 | | | | | | 0 | 245 | 545 |
| 10,000 | 8,900 | .9/.9 | .6/.8 | .2/.6 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 575 | .0/.1 | | | | | | | 0 | 270 | 562 |
| 11,000 | 8,900 | .8/.9 | .3/.8 | .1/.5 | .1/.3 | .1/.2 | .0/.1 | | | 450 | .0/.1 | | | | | | | 0 | 300 | 580 |
| 12,000 | 8,900 | .7/.9 | .2/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | 375 | .0/.1 | | | | | | | 0 | 325 | 597 |
| 13,000 | 8,900 | .5/.8 | .0/.6 | .0/.4 | .0/.2 | .0/.1 | | | | 300 | .0/.1 | | | | | | | 0 | 355 | 615 |
| 14,000 | 9,000 | .3/.8 | .0/.6 | .0/.4 | .0/.2 | .0/.1 | | | | 225 | .0/.1 | | | | | | | 0 | 380 | 632 |
| 15,000 | 9,000 | .2/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 150 | .0/.1 | | | | | | | 0 | 405 | 650 |
| 16,000 | 9,000 | .0/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | 100 | .0/.1 | | | | | | | 0 | 435 | 667 |
| 17,000 | 9,000 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | 0 | 460 | 685 |
| 18,000 | 9,000 | .0/.5 | .0/.4 | .0/.2 | .0/.1 | | | | | 0 | | | | | | | | 0 | 490 | 702 |
| 19,000 | 9,000 | .0/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | | | | | | | | 0 | 515 | 720 |
| 20,000 | 9,100 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | | | | | | | | 0 | 540 | 737 |
| 21,000 | 9,100 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | | | | | | | | 0 | 570 | 755 |
| 22,000 | 9,100 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | | | | | | | | 0 | 595 | 772 |
| 23,000 | 9,100 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | 0 | 625 | 790 |
| 24,000 | 9,100 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | 0 | 650 | 807 |
| 25,000 | 9,200 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | 0 | 675 | 825 |
| 26,000 | 9,200 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | 0 | 705 | 842 |
| 27,000 | 9,200 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 730 | 860 |
| 28,000 | 9,200 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 760 | 877 |
| 29,000 | 9,200 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 785 | 895 |
| 30,000 | 9,200 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | 0 | 810 | 912 |
| 31,000 | 9,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 840 | 930 |
| 32,000 | 9,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 865 | 947 |
| 33,000 | 9,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 895 | 965 |
| 34,000 | 9,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 920 | 982 |
| 35,000 | 9,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 945 | 1,000 |
| 36,000 | 9,300 | .0/.1 | | | | | | | | 0 | | | | | | | | 0 | 975 | 1,017 |
| 37,000 | 9,400 | | | | | | | | | 0 | | | | | | | | 0 | 1,000 | 1,035 |
| 38,000 | 9,400 | | | | | | | | | 0 | | | | | | | | 0 | 1,030 | 1,052 |
| 39,000 | 9,400 | | | | | | | | | 0 | | | | | | | | 0 | 1,055 | 1,070 |
| 40,000 | 9,400 | | | | | | | | | 0 | | | | | | | | 0 | 1,080 | 1,087 |

Figure 5.3d(2).

MATERIEL Targets
Large Free Rocket

GOLF/50 KT

IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | Offset
distance
d ₀
(meters) | Height
of
burst
(meters) | | |
|-------------------|---|--|------|-------|-------|-------|-------|--|------------------------|------|------|-------|-------|-------|--|-------|--|-----------------------------------|-------|---|
| | | WHEELED VEHICLES | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | | |
| | | Target radius (meters) | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | Prob min
R _D
(meters) | | | | | |
| | | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | | 1,600 | | | | |
| 7,000 | 5,000 | .9/9 | .8/9 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .9/9 | .6/8 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 190 | 0 |
| 8,000 | 5,000 | .9/9 | .8/9 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .8/9 | .6/7 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 220 | 0 |
| 9,000 | 5,100 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .8/9 | .6/7 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 245 | 0 |
| 10,000 | 5,100 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .8/9 | .6/7 | .4/5 | .2/3 | .1/1 | .1/2 | .1/1 | | 550 | 270 | 0 |
| 11,000 | 5,100 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .8/9 | .6/7 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 300 | 0 |
| 12,000 | 5,100 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .8/9 | .6/7 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 325 | 0 |
| 13,000 | 5,100 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .7/9 | .5/7 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 355 | 0 |
| 14,000 | 5,100 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .7/9 | .5/7 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 380 | 0 |
| 15,000 | 5,200 | .9/9 | .7/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .6/8 | .5/7 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 405 | 0 |
| 16,000 | 5,200 | .9/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .6/8 | .5/7 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 435 | 0 |
| 17,000 | 5,200 | .9/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .6/8 | .5/6 | .4/5 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 460 | 0 |
| 18,000 | 5,200 | .9/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .5/8 | .4/6 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 490 | 0 |
| 19,000 | 5,200 | .8/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .5/8 | .4/6 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 515 | 0 |
| 20,000 | 5,200 | .8/9 | .6/8 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .5/8 | .4/6 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 540 | 0 |
| 21,000 | 5,300 | .8/9 | .6/7 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .4/8 | .4/6 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 570 | 0 |
| 22,000 | 5,300 | .8/9 | .6/7 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .4/7 | .4/6 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 595 | 0 |
| 23,000 | 5,300 | .8/9 | .5/7 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .4/7 | .3/6 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 625 | 0 |
| 24,000 | 5,300 | .7/9 | .5/7 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .4/7 | .3/6 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 650 | 0 |
| 25,000 | 5,300 | .7/9 | .5/7 | .4/5 | .2/3 | .1/2 | .1/1 | | 850 | .3/7 | .3/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 675 | 0 |
| 26,000 | 5,300 | .7/9 | .5/7 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .3/7 | .3/5 | .3/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 705 | 0 |
| 27,000 | 5,400 | .6/9 | .5/7 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .2/6 | .3/5 | .2/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 730 | 0 |
| 28,000 | 5,400 | .6/9 | .5/7 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .2/6 | .2/5 | .2/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 760 | 0 |
| 29,000 | 5,400 | .6/9 | .4/7 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .2/6 | .2/5 | .2/4 | .2/3 | .2/2 | .1/2 | .1/1 | | 550 | 785 | 0 |
| 30,000 | 5,400 | .6/8 | .4/7 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .2/6 | .2/5 | .2/4 | .2/3 | .1/2 | .1/2 | .1/1 | | 550 | 810 | 0 |
| 31,000 | 5,400 | .5/8 | .4/7 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .1/6 | .2/5 | .2/4 | .2/3 | .1/2 | .1/2 | .1/1 | | 550 | 840 | 0 |
| 32,000 | 5,500 | .5/8 | .4/6 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .1/5 | .2/5 | .2/4 | .2/3 | .1/2 | .1/2 | .1/1 | | 550 | 865 | 0 |
| 33,000 | 5,500 | .5/8 | .4/6 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .1/5 | .1/5 | .2/4 | .2/3 | .1/2 | .1/2 | .1/1 | | 550 | 895 | 0 |
| 34,000 | 5,500 | .4/8 | .4/6 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .1/5 | .1/4 | .2/4 | .2/3 | .1/2 | .1/2 | .1/1 | | 550 | 920 | 0 |
| 35,000 | 5,500 | .4/8 | .3/6 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .1/5 | .1/4 | .1/4 | .2/3 | .1/2 | .1/2 | .1/1 | | 550 | 945 | 0 |
| 36,000 | 5,500 | .4/8 | .3/6 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .0/5 | .1/4 | .1/3 | .1/3 | .1/2 | .1/2 | .1/1 | | 550 | 975 | 0 |
| 37,000 | 5,500 | .4/7 | .3/6 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .0/5 | .1/4 | .1/3 | .1/3 | .1/2 | .1/2 | .1/1 | | 550 | 1,000 | 0 |
| 38,000 | 5,600 | .3/7 | .3/6 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .0/5 | .1/4 | .1/3 | .1/3 | .1/2 | .1/2 | .1/1 | | 550 | 1,030 | 0 |
| 39,000 | 5,600 | .3/7 | .3/6 | .3/4 | .2/3 | .1/2 | .1/1 | | 850 | .0/4 | .1/4 | .1/3 | .1/3 | .1/2 | .1/2 | .1/1 | | 550 | 1,055 | 0 |
| 40,000 | 5,600 | .2/7 | .2/6 | .2/4 | .2/3 | .1/2 | .1/1 | | 850 | .0/4 | .0/4 | .1/3 | .1/3 | .1/2 | .1/2 | .1/1 | | 550 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.3d(3).

LFR 1

MATERIEL Targets
Large Free Rocket
LOW Airburst
Precludes fallout

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED | | | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|-------|-------|-----|-------|---|-----------------------------------|
| | | In the column under each target radius; the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | | | |
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | | |
| 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 600 | 800 | 1,000 | | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | | | | | |
| 7,000 | 11,300 | .9/.9 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | 1,625 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | 925 | 190 | 263 | |
| 8,000 | 11,600 | .9/.9 | .9/.9 | .8/.9 | .6/.6 | .4/.5 | .3/.4 | .2/.3 | 1,625 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .3/.4 | .2/.3 | .1/.2 | 875 | 220 | 280 | |
| 9,000 | 11,600 | .9/.9 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | 1,600 | .9/.9 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 825 | 245 | 298 | |
| 10,000 | 11,600 | .9/.9 | .9/.9 | .8/.8 | .6/.6 | .4/.5 | .3/.3 | .2/.3 | 1,575 | .9/.9 | .7/.9 | .5/.7 | .3/.6 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | 750 | 270 | 315 | |
| 11,000 | 11,600 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | 1,550 | .8/.9 | .6/.8 | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | 675 | 300 | 333 | |
| 12,000 | 11,700 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | 1,550 | .8/.9 | .5/.8 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | 625 | 325 | 350 | |
| 13,000 | 11,700 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | 1,525 | .7/.9 | .4/.7 | .3/.6 | .2/.5 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | 575 | 355 | 368 | |
| 14,000 | 11,700 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | 1,500 | .6/.8 | .4/.7 | .2/.6 | .1/.4 | .1/.3 | .1/.3 | .0/.2 | .0/.2 | 525 | 380 | 385 | |
| 15,000 | 11,700 | .9/.9 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | 1,475 | .5/.8 | .3/.7 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 450 | 405 | 403 | |
| 16,000 | 11,700 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | 1,450 | .4/.8 | .2/.6 | .1/.5 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 400 | 435 | 420 | |
| 17,000 | 11,700 | .9/.9 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | 1,400 | .3/.7 | .2/.6 | .1/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 350 | 460 | 438 | |
| 18,000 | 11,800 | .9/.9 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | 1,375 | .2/.7 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 300 | 490 | 455 | |
| 19,000 | 11,800 | .9/.9 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | 1,350 | .1/.6 | .1/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 250 | 515 | 473 | |
| 20,000 | 11,800 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | 1,325 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 200 | 540 | 490 | |
| 21,000 | 11,800 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.4 | .2/.3 | .1/.2 | 1,275 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 150 | 570 | 508 | |
| 22,000 | 11,800 | .9/.9 | .7/.9 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | 1,250 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 100 | 595 | 525 | |
| 23,000 | 11,800 | .9/.9 | .7/.8 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | 1,175 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 50 | 625 | 543 | |
| 24,000 | 11,900 | .8/.9 | .7/.8 | .4/.7 | .2/.5 | .1/.3 | .1/.3 | .0/.2 | 1,075 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 650 | 560 | |
| 25,000 | 11,900 | .8/.9 | .4/.8 | .2/.6 | .1/.5 | .1/.3 | .0/.2 | .0/.2 | 825 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | 675 | 578 | |
| 26,000 | 11,900 | .7/.9 | .3/.8 | .1/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | 675 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 705 | 595 | |
| 27,000 | 11,900 | .5/.8 | .2/.7 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | 575 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | 730 | 613 | |
| 28,000 | 11,900 | .3/.8 | .1/.7 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | 500 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 760 | 630 | |
| 29,000 | 12,000 | .2/.8 | .1/.7 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | 425 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | 785 | 648 | |
| 30,000 | 12,000 | .1/.8 | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 350 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 810 | 665 | |
| 31,000 | 12,000 | .1/.8 | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 275 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | 840 | 683 | |
| 32,000 | 12,000 | .0/.8 | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 200 | .0/.2 | .0/.1 | | | | | | | 0 | 865 | 700 | |
| 33,000 | 12,000 | .0/.7 | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 125 | .0/.2 | .0/.1 | | | | | | | 0 | 895 | 718 | |
| 34,000 | 12,000 | .0/.7 | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 25 | .0/.2 | .0/.1 | | | | | | | 0 | 920 | 735 | |
| 35,000 | 12,100 | .0/.7 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 945 | 753 | |
| 36,000 | 12,100 | .0/.7 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 975 | 770 | |
| 37,000 | 12,100 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 1,000 | 788 | |
| 38,000 | 12,100 | .0/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | 0 | .0/.2 | .0/.1 | | | | | | | 0 | 1,030 | 805 | |
| 39,000 | 12,100 | .0/.6 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | 0 | .0/.1 | | | | | | | | 0 | 1,055 | 823 | |
| 40,000 | 12,100 | .0/.6 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 0 | .0/.1 | | | | | | | | 0 | 1,080 | 840 | |

Figure 5.3e(1).

MATERIEL Targets Large Free Rocket

HOTEL/100 KT

HIGH Airburst
Reduces intensity of induced contamination. Precludes fallout.

| Range
(meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d_o
(meters) | Height
of
burst
(meters) | | |
|-------------------|--|--|-------|-------|-------|-------|-------|-------|-------|-------------------------------|------------------------|-------|-------|-------|--|--|--|---|-----------------------------------|-------------------------------|-------|
| | | WHEELED VEHICLES | | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | | Prob min
R_D
(meters) | Target radius (meters) | | | | | | | | | Prob min
R_D
(meters) | |
| | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | | 400 | 600 | 800 | 1,000 | | | | | | | |
| 7,000 | 11,600 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 1,325 | .2/.6 | .1/.3 | .0/.2 | .0/.1 | | | | | 225 | 190 | 611 |
| 8,000 | 11,600 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 1,300 | .1/.5 | .0/.3 | .0/.2 | .0/.1 | | | | | 175 | 220 | 628 |
| 9,000 | 11,600 | .9/.9 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,250 | .0/.4 | .0/.2 | .0/.1 | | | | | | 125 | 245 | 646 |
| 10,000 | 11,600 | .9/.9 | .8/.9 | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,200 | .0/.4 | .0/.2 | .0/.1 | | | | | | 75 | 270 | 663 |
| 11,000 | 11,600 | .9/.9 | .7/.8 | .4/.6 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 1,100 | .0/.3 | .0/.2 | .0/.1 | | | | | | 25 | 300 | 681 |
| 12,000 | 11,600 | .9/.9 | .5/.8 | .2/.6 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 850 | .0/.3 | .0/.1 | | | | | | | 0 | 325 | 698 |
| 13,000 | 11,700 | .7/.9 | .3/.8 | .1/.6 | .1/.4 | .0/.3 | .0/.2 | .0/.1 | | 700 | .0/.2 | .0/.1 | | | | | | | 0 | 355 | 716 |
| 14,000 | 11,700 | .5/.9 | .2/.7 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 600 | .0/.2 | .0/.1 | | | | | | | 0 | 380 | 733 |
| 15,000 | 11,700 | .4/.8 | .1/.7 | .1/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 500 | .0/.2 | .0/.1 | | | | | | | 0 | 405 | 751 |
| 16,000 | 11,700 | .2/.8 | .1/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | 425 | .0/.2 | .0/.1 | | | | | | | 0 | 435 | 768 |
| 17,000 | 11,700 | .1/.7 | .0/.5 | .0/.4 | .0/.2 | .0/.2 | .0/.1 | | | 350 | .0/.1 | | | | | | | | 0 | 460 | 786 |
| 18,000 | 11,700 | .1/.7 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 275 | .0/.1 | | | | | | | | 0 | 490 | 803 |
| 19,000 | 11,800 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 200 | .0/.1 | | | | | | | | 0 | 515 | 821 |
| 20,000 | 11,800 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 125 | .0/.1 | | | | | | | | 0 | 540 | 838 |
| 21,000 | 11,800 | .0/.6 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 25 | .0/.1 | | | | | | | | 0 | 570 | 856 |
| 22,000 | 11,800 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 595 | 873 |
| 23,000 | 11,800 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | 0 | .0/.1 | | | | | | | | 0 | 625 | 891 |
| 24,000 | 11,800 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 650 | 908 |
| 25,000 | 11,900 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 675 | 926 |
| 26,000 | 11,900 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 705 | 943 |
| 27,000 | 11,900 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 730 | 961 |
| 28,000 | 11,900 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.1 | | | | | | | | 0 | 760 | 978 |
| 29,000 | 11,900 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 785 | 996 |
| 30,000 | 12,000 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | .0/.1 | | | | | | | | 0 | 810 | 1,013 |
| 31,000 | 12,000 | .0/.3 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | | 0 | 840 | 1,031 |
| 32,000 | 12,000 | .0/.2 | .0/.2 | .0/.1 | | | | | | 0 | | | | | | | | | 0 | 865 | 1,048 |
| 33,000 | 12,000 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | | 0 | 895 | 1,066 |
| 34,000 | 12,000 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | | 0 | 920 | 1,083 |
| 35,000 | 12,000 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | | 0 | 945 | 1,101 |
| 36,000 | 12,100 | .0/.2 | .0/.1 | | | | | | | 0 | | | | | | | | | 0 | 975 | 1,118 |
| 37,000 | 12,100 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 1,000 | 1,136 |
| 38,000 | 12,100 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 1,030 | 1,153 |
| 39,000 | 12,100 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 1,055 | 1,171 |
| 40,000 | 12,100 | .0/.1 | | | | | | | | 0 | | | | | | | | | 0 | 1,080 | 1,188 |

Figure 5.3e(2).

¹Large Free Rocket.

MATERIEL Targets
Large Free Rocket
IMPACT Burst
Produces fallout

| Range
(meters) | Minimum
safe
distance ¹
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | Height
of
burst
(meters) | |
|-------------------|---|--|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|--|--|-----------------------------------|-------|
| | | WHEELED VEHICLES | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | Target radius (meters) | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | Prob min
R _D
(meters) | | | |
| | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | | | | 2,000 |
| 7,000 | 6,600 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .8/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 190 | 0 |
| 8,000 | 6,600 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .8/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 220 | 0 |
| 9,000 | 6,600 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .8/.9 | .6/.8 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 245 | 0 |
| 10,000 | 6,600 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 270 | 0 |
| 11,000 | 6,600 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 300 | 0 |
| 12,000 | 6,700 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 325 | 0 |
| 13,000 | 6,700 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 355 | 0 |
| 14,000 | 6,700 | .9/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 380 | 0 |
| 15,000 | 6,700 | .9/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 405 | 0 |
| 16,000 | 6,700 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 435 | 0 |
| 17,000 | 6,700 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 460 | 0 |
| 18,000 | 6,800 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 490 | 0 |
| 19,000 | 6,800 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 515 | 0 |
| 20,000 | 6,800 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 540 | 0 |
| 21,000 | 6,800 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 570 | 0 |
| 22,000 | 6,800 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .5/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 595 | 0 |
| 23,000 | 6,900 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .5/.8 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 625 | 0 |
| 24,000 | 6,900 | .7/.9 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .5/.8 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 650 | 0 |
| 25,000 | 6,900 | .7/.9 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 675 | 0 |
| 26,000 | 6,900 | .7/.9 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .5/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 705 | 0 |
| 27,000 | 6,900 | .7/.9 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 730 | 0 |
| 28,000 | 6,900 | .7/.9 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 760 | 0 |
| 29,000 | 7,000 | .6/.8 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 785 | 0 |
| 30,000 | 7,000 | .6/.8 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .4/.7 | .3/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 810 | 0 |
| 31,000 | 7,000 | .6/.8 | .5/.7 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .4/.7 | .3/.6 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 840 | 0 |
| 32,000 | 7,000 | .6/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .3/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 865 | 0 |
| 33,000 | 7,000 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 895 | 0 |
| 34,000 | 7,000 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 920 | 0 |
| 35,000 | 7,100 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .2/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 750 | 945 | 0 |
| 36,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .2/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 750 | 975 | 0 |
| 37,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 750 | 1,000 | 0 |
| 38,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 750 | 1,030 | 0 |
| 39,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 750 | 1,055 | 0 |
| 40,000 | 7,100 | .5/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,100 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 750 | 1,080 | 0 |

¹Initial effects only. Fallout governs.

Figure 5.3e(3).

Troop Safety Distances—Meters Large Free Rocket

DELTA/5 KT

LOW Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 3,400 | 2,500 | 2,200 | 2,200 | 1,900 | 1,500 | 1,800 | 1,500 | 1,300 |
| 8,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,800 | 1,500 | 1,300 |
| 9,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 10,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 11,000 | 3,400 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 12,000 | 3,500 | 2,600 | 2,200 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,400 |
| 13,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,400 |
| 14,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,700 | 1,900 | 1,600 | 1,400 |
| 15,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 16,000 | 3,500 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 17,000 | 3,500 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 2,100 | 1,700 | 1,400 |
| 18,000 | 3,600 | 2,700 | 2,300 | 2,400 | 2,100 | 1,700 | 2,100 | 1,700 | 1,500 |
| 19,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,700 | 2,100 | 1,700 | 1,500 |
| 20,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,800 | 2,200 | 1,700 | 1,500 |
| 21,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 22,000 | 3,600 | 2,800 | 2,400 | 2,500 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 23,000 | 3,600 | 2,800 | 2,400 | 2,500 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 24,000 | 3,700 | 2,800 | 2,400 | 2,500 | 2,200 | 1,800 | 2,200 | 1,800 | 1,500 |
| 25,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,800 | 2,200 | 1,800 | 1,600 |
| 26,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,800 | 2,300 | 1,800 | 1,600 |
| 27,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 28,000 | 3,700 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 29,000 | 3,700 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 30,000 | 3,800 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 31,000 | 3,800 | 3,000 | 2,600 | 2,600 | 2,300 | 1,900 | 2,300 | 1,900 | 1,700 |
| 32,000 | 3,800 | 3,000 | 2,600 | 2,600 | 2,300 | 1,900 | 2,400 | 1,900 | 1,700 |
| 33,000 | 3,800 | 3,000 | 2,600 | 2,600 | 2,300 | 2,000 | 2,400 | 2,000 | 1,700 |
| 34,000 | 3,800 | 3,000 | 2,600 | 2,600 | 2,300 | 2,000 | 2,400 | 2,000 | 1,700 |
| 35,000 | 3,800 | 3,000 | 2,600 | 2,700 | 2,300 | 2,000 | 2,400 | 2,000 | 1,700 |
| 36,000 | 3,900 | 3,000 | 2,600 | 2,700 | 2,300 | 2,000 | 2,400 | 2,000 | 1,700 |
| 37,000 | 3,900 | 3,100 | 2,700 | 2,700 | 2,400 | 2,000 | 2,500 | 2,000 | 1,700 |
| 38,000 | 3,900 | 3,100 | 2,700 | 2,700 | 2,400 | 2,000 | 2,500 | 2,000 | 1,800 |
| 39,000 | 3,900 | 3,100 | 2,700 | 2,700 | 2,400 | 2,100 | 2,500 | 2,000 | 1,800 |
| 40,000 | 3,900 | 3,100 | 2,700 | 2,700 | 2,400 | 2,100 | 2,500 | 2,100 | 1,800 |

Figure 5.4a(1).

HIGH Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 3,400 | 2,500 | 2,100 | 2,200 | 1,900 | 1,500 | 1,800 | 1,500 | 1,300 |
| 8,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,500 | 1,800 | 1,500 | 1,300 |
| 9,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,800 | 1,500 | 1,300 |
| 10,000 | 3,400 | 2,600 | 2,200 | 2,200 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 11,000 | 3,400 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 12,000 | 3,400 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 13,000 | 3,500 | 2,600 | 2,200 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,300 |
| 14,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,600 | 2,000 | 1,600 | 1,400 |
| 15,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,600 | 2,100 | 1,600 | 1,400 |
| 16,000 | 3,500 | 2,700 | 2,300 | 2,300 | 2,000 | 1,700 | 2,100 | 1,700 | 1,400 |
| 17,000 | 3,500 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 2,100 | 1,700 | 1,400 |
| 18,000 | 3,500 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 2,100 | 1,700 | 1,400 |
| 19,000 | 3,600 | 2,700 | 2,300 | 2,400 | 2,000 | 1,700 | 2,100 | 1,700 | 1,400 |
| 20,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,700 | 2,200 | 1,700 | 1,500 |
| 21,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,700 | 2,200 | 1,700 | 1,500 |
| 22,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 23,000 | 3,600 | 2,800 | 2,400 | 2,400 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 24,000 | 3,600 | 2,800 | 2,400 | 2,500 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 25,000 | 3,700 | 2,800 | 2,400 | 2,500 | 2,100 | 1,800 | 2,200 | 1,800 | 1,500 |
| 26,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,800 | 2,300 | 1,800 | 1,500 |
| 27,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,800 | 2,300 | 1,800 | 1,600 |
| 28,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,800 | 2,300 | 1,800 | 1,600 |
| 29,000 | 3,700 | 2,900 | 2,500 | 2,500 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 30,000 | 3,700 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 31,000 | 3,800 | 2,900 | 2,500 | 2,600 | 2,200 | 1,900 | 2,300 | 1,900 | 1,600 |
| 32,000 | 3,800 | 2,900 | 2,600 | 2,600 | 2,300 | 1,900 | 2,400 | 1,900 | 1,600 |
| 33,000 | 3,800 | 3,000 | 2,600 | 2,600 | 2,300 | 1,900 | 2,400 | 1,900 | 1,600 |
| 34,000 | 3,800 | 3,000 | 2,600 | 2,600 | 2,300 | 1,900 | 2,400 | 1,900 | 1,700 |
| 35,000 | 3,800 | 3,000 | 2,600 | 2,600 | 2,300 | 2,000 | 2,400 | 1,900 | 1,700 |
| 36,000 | 3,800 | 3,000 | 2,600 | 2,700 | 2,300 | 2,000 | 2,400 | 2,000 | 1,700 |
| 37,000 | 3,900 | 3,000 | 2,600 | 2,700 | 2,300 | 2,000 | 2,500 | 2,000 | 1,700 |
| 38,000 | 3,900 | 3,000 | 2,600 | 2,700 | 2,300 | 2,000 | 2,500 | 2,000 | 1,700 |
| 39,000 | 3,900 | 3,100 | 2,700 | 2,700 | 2,400 | 2,000 | 2,500 | 2,000 | 1,700 |
| 40,000 | 3,900 | 3,100 | 2,700 | 2,700 | 2,400 | 2,000 | 2,500 | 2,000 | 1,700 |

Figure 5.4a(2).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientations.

LFR 1

Troop Safety Distances—Meters Large Free Rocket

IMPACT Burst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 2,200 | 1,900 | 1,500 | 2,200 | 1,900 | 1,500 | 1,800 | 1,500 | 1,300 |
| 8,000 | 2,200 | 1,900 | 1,600 | 2,200 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 9,000 | 2,200 | 1,900 | 1,600 | 2,200 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 10,000 | 2,300 | 1,900 | 1,600 | 2,300 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| 11,000 | 2,300 | 1,900 | 1,600 | 2,300 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| 12,000 | 2,300 | 2,000 | 1,600 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,400 |
| 13,000 | 2,300 | 2,000 | 1,600 | 2,300 | 2,000 | 1,600 | 1,900 | 1,600 | 1,400 |
| 14,000 | 2,300 | 2,000 | 1,700 | 2,300 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 15,000 | 2,300 | 2,000 | 1,700 | 2,300 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 16,000 | 2,400 | 2,000 | 1,700 | 2,400 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 17,000 | 2,400 | 2,000 | 1,700 | 2,400 | 2,000 | 1,700 | 2,000 | 1,700 | 1,500 |
| 18,000 | 2,400 | 2,100 | 1,700 | 2,400 | 2,100 | 1,700 | 2,000 | 1,700 | 1,500 |
| 19,000 | 2,400 | 2,100 | 1,800 | 2,400 | 2,100 | 1,800 | 2,000 | 1,700 | 1,500 |
| 20,000 | 2,400 | 2,100 | 1,800 | 2,400 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 21,000 | 2,400 | 2,100 | 1,800 | 2,400 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 22,000 | 2,500 | 2,100 | 1,800 | 2,500 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 23,000 | 2,500 | 2,200 | 1,800 | 2,500 | 2,200 | 1,800 | 2,100 | 1,800 | 1,600 |
| 24,000 | 2,500 | 2,200 | 1,800 | 2,500 | 2,200 | 1,800 | 2,100 | 1,800 | 1,600 |
| 25,000 | 2,500 | 2,200 | 1,900 | 2,500 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 26,000 | 2,500 | 2,200 | 1,900 | 2,500 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 27,000 | 2,600 | 2,200 | 1,900 | 2,600 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 28,000 | 2,600 | 2,200 | 1,900 | 2,600 | 2,200 | 1,900 | 2,200 | 1,900 | 1,600 |
| 29,000 | 2,600 | 2,300 | 1,900 | 2,600 | 2,300 | 1,900 | 2,200 | 1,900 | 1,700 |
| 30,000 | 2,600 | 2,300 | 1,900 | 2,600 | 2,300 | 1,900 | 2,200 | 1,900 | 1,700 |
| 31,000 | 2,600 | 2,300 | 2,000 | 2,600 | 2,300 | 2,000 | 2,300 | 2,000 | 1,700 |
| 32,000 | 2,600 | 2,300 | 2,000 | 2,600 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 33,000 | 2,700 | 2,300 | 2,000 | 2,700 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 34,000 | 2,700 | 2,300 | 2,000 | 2,700 | 2,300 | 2,000 | 2,300 | 2,000 | 1,700 |
| 35,000 | 2,700 | 2,400 | 2,000 | 2,700 | 2,400 | 2,000 | 2,300 | 2,000 | 1,800 |
| 36,000 | 2,700 | 2,400 | 2,000 | 2,700 | 2,400 | 2,000 | 2,300 | 2,000 | 1,800 |
| 37,000 | 2,700 | 2,400 | 2,100 | 2,700 | 2,400 | 2,100 | 2,300 | 2,100 | 1,800 |
| 38,000 | 2,700 | 2,400 | 2,100 | 2,700 | 2,400 | 2,100 | 2,300 | 2,100 | 1,800 |
| 39,000 | 2,800 | 2,400 | 2,100 | 2,800 | 2,400 | 2,100 | 2,400 | 2,100 | 1,800 |
| 40,000 | 2,800 | 2,400 | 2,100 | 2,800 | 2,400 | 2,100 | 2,400 | 2,100 | 1,900 |

Figure 5.4a(3).

NOTES: Initial effects only. Fallout governs.

The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientations.

Troop Safety Distances—Meters Large Free Rocket

ECHO/10 KT

LOW Airburst

HIGH Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 8,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 9,000 | 4,200 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 10,000 | 4,200 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 11,000 | 4,300 | 3,400 | 3,200 | 2,900 | 2,100 | 1,800 | 2,000 | 1,700 | 1,400 |
| 12,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,100 | 1,700 | 1,500 |
| 13,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,100 | 1,700 | 1,500 |
| 14,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,200 | 1,700 | 1,500 |
| 15,000 | 4,300 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,200 | 1,700 | 1,500 |
| 16,000 | 4,300 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,300 | 1,700 | 1,500 |
| 17,000 | 4,400 | 3,500 | 3,300 | 3,000 | 2,200 | 1,900 | 2,300 | 1,800 | 1,500 |
| 18,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,400 | 1,800 | 1,600 |
| 19,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,500 | 1,800 | 1,600 |
| 20,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,500 | 1,800 | 1,600 |
| 21,000 | 4,400 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,600 | 1,900 | 1,600 |
| 22,000 | 4,500 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,600 | 1,900 | 1,600 |
| 23,000 | 4,500 | 3,600 | 3,400 | 3,100 | 2,300 | 2,000 | 2,600 | 1,900 | 1,600 |
| 24,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,700 | 1,900 | 1,600 |
| 25,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,700 | 2,000 | 1,700 |
| 26,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,700 | 2,000 | 1,700 |
| 27,000 | 4,500 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,700 | 2,000 | 1,700 |
| 28,000 | 4,600 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,800 | 2,000 | 1,700 |
| 29,000 | 4,600 | 3,700 | 3,500 | 3,200 | 2,400 | 2,000 | 2,800 | 2,000 | 1,700 |
| 30,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,400 | 2,100 | 2,800 | 2,100 | 1,700 |
| 31,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,400 | 2,100 | 2,800 | 2,100 | 1,800 |
| 32,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,400 | 2,100 | 2,800 | 2,100 | 1,800 |
| 33,000 | 4,600 | 3,800 | 3,600 | 3,300 | 2,400 | 2,100 | 2,800 | 2,100 | 1,800 |
| 34,000 | 4,700 | 3,800 | 3,600 | 3,300 | 2,400 | 2,100 | 2,900 | 2,100 | 1,800 |
| 35,000 | 4,700 | 3,800 | 3,600 | 3,300 | 2,500 | 2,100 | 2,900 | 2,100 | 1,800 |
| 36,000 | 4,700 | 3,900 | 3,600 | 3,300 | 2,500 | 2,200 | 2,900 | 2,200 | 1,800 |
| 37,000 | 4,700 | 3,900 | 3,600 | 3,300 | 2,500 | 2,200 | 2,900 | 2,200 | 1,900 |
| 38,000 | 4,700 | 3,900 | 3,600 | 3,300 | 2,500 | 2,200 | 2,900 | 2,200 | 1,900 |
| 39,000 | 4,700 | 3,900 | 3,700 | 3,400 | 2,500 | 2,200 | 2,900 | 2,200 | 1,900 |
| 40,000 | 4,800 | 3,900 | 3,700 | 3,400 | 2,500 | 2,200 | 3,000 | 2,200 | 1,900 |

Figure 5.4b(1).

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 2,000 | 1,600 | 1,300 |
| 8,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 2,100 | 1,600 | 1,300 |
| 9,000 | 4,200 | 3,400 | 3,100 | 2,800 | 2,000 | 1,700 | 2,100 | 1,600 | 1,300 |
| 10,000 | 4,200 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,200 | 1,600 | 1,300 |
| 11,000 | 4,300 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,200 | 1,600 | 1,300 |
| 12,000 | 4,300 | 3,400 | 3,200 | 2,900 | 2,100 | 1,700 | 2,300 | 1,600 | 1,300 |
| 13,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,400 | 1,700 | 1,400 |
| 14,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,400 | 1,700 | 1,500 |
| 15,000 | 4,300 | 3,500 | 3,200 | 2,900 | 2,100 | 1,800 | 2,500 | 1,800 | 1,500 |
| 16,000 | 4,300 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,500 | 1,800 | 1,500 |
| 17,000 | 4,400 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,500 | 1,800 | 1,500 |
| 18,000 | 4,400 | 3,500 | 3,300 | 3,000 | 2,100 | 1,800 | 2,600 | 1,800 | 1,500 |
| 19,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,600 | 1,900 | 1,500 |
| 20,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,600 | 1,900 | 1,500 |
| 21,000 | 4,400 | 3,600 | 3,300 | 3,000 | 2,200 | 1,900 | 2,600 | 1,900 | 1,600 |
| 22,000 | 4,400 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,700 | 1,900 | 1,600 |
| 23,000 | 4,500 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,700 | 1,900 | 1,600 |
| 24,000 | 4,500 | 3,600 | 3,400 | 3,100 | 2,200 | 1,900 | 2,700 | 1,900 | 1,600 |
| 25,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 1,900 | 2,700 | 2,000 | 1,600 |
| 26,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,700 | 2,000 | 1,600 |
| 27,000 | 4,500 | 3,700 | 3,400 | 3,100 | 2,300 | 2,000 | 2,700 | 2,000 | 1,600 |
| 28,000 | 4,500 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,800 | 2,000 | 1,700 |
| 29,000 | 4,600 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,800 | 2,000 | 1,700 |
| 30,000 | 4,600 | 3,700 | 3,500 | 3,200 | 2,300 | 2,000 | 2,800 | 2,100 | 1,700 |
| 31,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,300 | 2,000 | 2,800 | 2,100 | 1,700 |
| 32,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,400 | 2,100 | 2,800 | 2,100 | 1,700 |
| 33,000 | 4,600 | 3,800 | 3,500 | 3,200 | 2,400 | 2,100 | 2,800 | 2,100 | 1,700 |
| 34,000 | 4,700 | 3,800 | 3,600 | 3,300 | 2,400 | 2,100 | 2,900 | 2,100 | 1,800 |
| 35,000 | 4,700 | 3,800 | 3,600 | 3,300 | 2,500 | 2,100 | 2,900 | 2,100 | 1,800 |
| 36,000 | 4,700 | 3,900 | 3,600 | 3,300 | 2,500 | 2,200 | 2,900 | 2,200 | 1,800 |
| 37,000 | 4,700 | 3,900 | 3,600 | 3,300 | 2,500 | 2,200 | 2,900 | 2,200 | 1,900 |
| 38,000 | 4,700 | 3,900 | 3,600 | 3,300 | 2,500 | 2,200 | 2,900 | 2,200 | 1,900 |
| 39,000 | 4,700 | 3,900 | 3,700 | 3,400 | 2,500 | 2,200 | 2,900 | 2,200 | 1,900 |
| 40,000 | 4,800 | 3,900 | 3,700 | 3,400 | 2,500 | 2,200 | 3,000 | 2,200 | 1,900 |

Figure 5.4b(2).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientations.

LFR 1

Troop Safety Distances—Meters Large Free Rocket

IMPACT Burst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 2,700 | 2,000 | 1,800 | 2,400 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 8,000 | 2,700 | 2,100 | 1,800 | 2,400 | 2,000 | 1,700 | 1,900 | 1,700 | 1,400 |
| 9,000 | 2,800 | 2,100 | 1,800 | 2,400 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 10,000 | 2,800 | 2,100 | 1,800 | 2,400 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| 11,000 | 2,800 | 2,100 | 1,800 | 2,400 | 2,100 | 1,800 | 2,000 | 1,700 | 1,400 |
| 12,000 | 2,800 | 2,100 | 1,900 | 2,400 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 13,000 | 2,800 | 2,200 | 1,900 | 2,500 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 14,000 | 2,900 | 2,200 | 1,900 | 2,500 | 2,100 | 1,800 | 2,000 | 1,800 | 1,500 |
| 15,000 | 2,900 | 2,200 | 1,900 | 2,500 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 16,000 | 2,900 | 2,200 | 1,900 | 2,500 | 2,100 | 1,800 | 2,100 | 1,800 | 1,500 |
| 17,000 | 2,900 | 2,200 | 1,900 | 2,500 | 2,200 | 1,900 | 2,100 | 1,800 | 1,600 |
| 18,000 | 2,900 | 2,200 | 2,000 | 2,500 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 19,000 | 2,900 | 2,300 | 2,000 | 2,600 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 20,000 | 3,000 | 2,300 | 2,000 | 2,600 | 2,200 | 1,900 | 2,200 | 1,900 | 1,600 |
| 21,000 | 3,000 | 2,300 | 2,000 | 2,600 | 2,200 | 1,900 | 2,200 | 1,900 | 1,600 |
| 22,000 | 3,000 | 2,300 | 2,000 | 2,600 | 2,300 | 2,000 | 2,200 | 1,900 | 1,600 |
| 23,000 | 3,000 | 2,300 | 2,100 | 2,600 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 24,000 | 3,000 | 2,300 | 2,100 | 2,700 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 25,000 | 3,000 | 2,400 | 2,100 | 2,700 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 26,000 | 3,100 | 2,400 | 2,100 | 2,700 | 2,300 | 2,000 | 2,300 | 2,000 | 1,700 |
| 27,000 | 3,100 | 2,400 | 2,100 | 2,700 | 2,300 | 2,000 | 2,300 | 2,000 | 1,700 |
| 28,000 | 3,100 | 2,400 | 2,100 | 2,700 | 2,400 | 2,100 | 2,300 | 2,000 | 1,700 |
| 29,000 | 3,100 | 2,400 | 2,200 | 2,700 | 2,400 | 2,100 | 2,300 | 2,100 | 1,800 |
| 30,000 | 3,100 | 2,400 | 2,200 | 2,800 | 2,400 | 2,100 | 2,300 | 2,100 | 1,800 |
| 31,000 | 3,200 | 2,500 | 2,200 | 2,800 | 2,400 | 2,100 | 2,300 | 2,100 | 1,800 |
| 32,000 | 3,200 | 2,500 | 2,200 | 2,800 | 2,400 | 2,100 | 2,300 | 2,100 | 1,800 |
| 33,000 | 3,200 | 2,500 | 2,200 | 2,800 | 2,400 | 2,100 | 2,400 | 2,100 | 1,800 |
| 34,000 | 3,200 | 2,500 | 2,200 | 2,800 | 2,500 | 2,200 | 2,400 | 2,100 | 1,800 |
| 35,000 | 3,200 | 2,500 | 2,300 | 2,800 | 2,500 | 2,200 | 2,400 | 2,200 | 1,900 |
| 36,000 | 3,200 | 2,600 | 2,300 | 2,900 | 2,500 | 2,200 | 2,400 | 2,200 | 1,900 |
| 37,000 | 3,300 | 2,600 | 2,300 | 2,900 | 2,500 | 2,200 | 2,500 | 2,200 | 1,900 |
| 38,000 | 3,300 | 2,600 | 2,300 | 2,900 | 2,500 | 2,200 | 2,500 | 2,200 | 1,900 |
| 39,000 | 3,300 | 2,600 | 2,300 | 2,900 | 2,600 | 2,300 | 2,500 | 2,200 | 1,900 |
| 40,000 | 3,300 | 2,600 | 2,300 | 2,900 | 2,600 | 2,300 | 2,500 | 2,200 | 2,000 |

Figure 5.4b(3)

NOTES: Initial effects only. Fallout governs.

The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientations.

Troop Safety Distances—Meters Large Free Rocket

FOXTROT/20 KT

LOW Airburst

HIGH Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEC
Risk | MOD
Risk | EMERG
Risk | NEC
Risk | MOD
Risk | EMERG
Risk | NEC
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 6,000 | 4,200 | 3,700 | 3,700 | 2,500 | 2,000 | 2,100 | 1,800 | 1,500 |
| 8,000 | 6,000 | 4,200 | 3,700 | 3,700 | 2,500 | 2,000 | 2,200 | 1,800 | 1,500 |
| 9,000 | 6,100 | 4,200 | 3,700 | 3,800 | 2,500 | 2,000 | 2,200 | 1,800 | 1,500 |
| 10,000 | 6,100 | 4,200 | 3,700 | 3,800 | 2,500 | 2,000 | 2,300 | 1,800 | 1,500 |
| 11,000 | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,100 | 2,300 | 1,800 | 1,600 |
| 12,000 | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,100 | 2,400 | 1,900 | 1,600 |
| 13,000 | 6,100 | 4,300 | 3,800 | 3,800 | 2,600 | 2,100 | 2,400 | 1,900 | 1,600 |
| 14,000 | 6,100 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,500 | 1,900 | 1,600 |
| 15,000 | 6,200 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,600 | 1,900 | 1,600 |
| 16,000 | 6,200 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,600 | 2,000 | 1,600 |
| 17,000 | 6,200 | 4,400 | 3,800 | 3,900 | 2,600 | 2,200 | 2,700 | 2,000 | 1,700 |
| 18,000 | 6,200 | 4,400 | 3,900 | 3,900 | 2,600 | 2,200 | 2,800 | 2,000 | 1,700 |
| 19,000 | 6,200 | 4,400 | 3,900 | 3,900 | 2,700 | 2,200 | 2,800 | 2,100 | 1,700 |
| 20,000 | 6,200 | 4,400 | 3,900 | 4,000 | 2,700 | 2,200 | 2,900 | 2,100 | 1,700 |
| 21,000 | 6,300 | 4,400 | 3,900 | 4,000 | 2,700 | 2,200 | 2,900 | 2,200 | 1,700 |
| 22,000 | 6,300 | 4,500 | 3,900 | 4,000 | 2,700 | 2,200 | 3,000 | 2,200 | 1,700 |
| 23,000 | 6,300 | 4,500 | 3,900 | 4,000 | 2,700 | 2,300 | 3,000 | 2,200 | 1,800 |
| 24,000 | 6,300 | 4,500 | 4,000 | 4,000 | 2,700 | 2,300 | 3,100 | 2,200 | 1,800 |
| 25,000 | 6,300 | 4,500 | 4,000 | 4,000 | 2,800 | 2,300 | 3,100 | 2,300 | 1,800 |
| 26,000 | 6,300 | 4,500 | 4,000 | 4,100 | 2,800 | 2,300 | 3,200 | 2,300 | 1,800 |
| 27,000 | 6,400 | 4,500 | 4,000 | 4,100 | 2,800 | 2,300 | 3,200 | 2,300 | 1,800 |
| 28,000 | 6,400 | 4,600 | 4,000 | 4,100 | 2,800 | 2,300 | 3,300 | 2,400 | 1,800 |
| 29,000 | 6,400 | 4,600 | 4,000 | 4,100 | 2,800 | 2,400 | 3,300 | 2,400 | 1,800 |
| 30,000 | 6,400 | 4,600 | 4,100 | 4,100 | 2,800 | 2,400 | 3,300 | 2,500 | 1,900 |
| 31,000 | 6,400 | 4,600 | 4,100 | 4,100 | 2,900 | 2,400 | 3,300 | 2,500 | 1,900 |
| 32,000 | 6,400 | 4,600 | 4,100 | 4,200 | 2,900 | 2,400 | 3,400 | 2,500 | 1,900 |
| 33,000 | 6,500 | 4,600 | 4,100 | 4,200 | 2,900 | 2,400 | 3,400 | 2,500 | 1,900 |
| 34,000 | 6,500 | 4,700 | 4,100 | 4,200 | 2,900 | 2,400 | 3,400 | 2,500 | 1,900 |
| 35,000 | 6,500 | 4,700 | 4,100 | 4,200 | 2,900 | 2,500 | 3,400 | 2,500 | 1,900 |
| 36,000 | 6,500 | 4,700 | 4,200 | 4,200 | 2,900 | 2,500 | 3,400 | 2,600 | 2,000 |
| 37,000 | 6,500 | 4,700 | 4,200 | 4,200 | 3,000 | 2,500 | 3,500 | 2,600 | 2,000 |
| 38,000 | 6,600 | 4,700 | 4,200 | 4,300 | 3,000 | 2,500 | 3,500 | 2,600 | 2,000 |
| 39,000 | 6,600 | 4,700 | 4,200 | 4,300 | 3,000 | 2,500 | 3,500 | 2,600 | 2,000 |
| 40,000 | 6,600 | 4,800 | 4,200 | 4,300 | 3,000 | 2,500 | 3,500 | 2,600 | 2,000 |

Figure 5.4c(1).

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEC
Risk | MOD
Risk | EMERG
Risk | NEC
Risk | MOD
Risk | EMERG
Risk | NEC
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 5,900 | 4,100 | 3,600 | 3,700 | 2,400 | 1,900 | 2,100 | 1,700 | 1,400 |
| 8,000 | 6,000 | 4,100 | 3,600 | 3,700 | 2,400 | 1,900 | 2,200 | 1,700 | 1,400 |
| 9,000 | 6,000 | 4,200 | 3,600 | 3,700 | 2,400 | 1,900 | 2,200 | 1,700 | 1,400 |
| 10,000 | 6,000 | 4,200 | 3,600 | 3,700 | 2,400 | 2,000 | 2,300 | 1,700 | 1,500 |
| 11,000 | 6,000 | 4,200 | 3,700 | 3,700 | 2,400 | 2,000 | 2,300 | 1,800 | 1,500 |
| 12,000 | 6,000 | 4,200 | 3,700 | 3,700 | 2,500 | 2,000 | 2,400 | 1,800 | 1,500 |
| 13,000 | 6,000 | 4,200 | 3,700 | 3,800 | 2,500 | 2,000 | 2,400 | 1,800 | 1,500 |
| 14,000 | 6,100 | 4,200 | 3,700 | 3,800 | 2,500 | 2,000 | 2,500 | 1,800 | 1,500 |
| 15,000 | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,000 | 2,600 | 1,900 | 1,500 |
| 16,000 | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,100 | 2,600 | 1,900 | 1,500 |
| 17,000 | 6,100 | 4,300 | 3,800 | 3,800 | 2,500 | 2,100 | 2,700 | 2,000 | 1,600 |
| 18,000 | 6,100 | 4,300 | 3,800 | 3,800 | 2,600 | 2,100 | 2,700 | 2,000 | 1,600 |
| 19,000 | 6,200 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,800 | 2,000 | 1,600 |
| 20,000 | 6,200 | 4,300 | 3,800 | 3,900 | 2,600 | 2,100 | 2,900 | 2,100 | 1,600 |
| 21,000 | 6,200 | 4,400 | 3,800 | 3,900 | 2,600 | 2,100 | 2,900 | 2,100 | 1,600 |
| 22,000 | 6,200 | 4,400 | 3,800 | 3,900 | 2,600 | 2,200 | 3,000 | 2,100 | 1,600 |
| 23,000 | 6,200 | 4,400 | 3,900 | 3,900 | 2,600 | 2,200 | 3,000 | 2,100 | 1,700 |
| 24,000 | 6,200 | 4,400 | 3,900 | 3,900 | 2,700 | 2,200 | 3,100 | 2,200 | 1,700 |
| 25,000 | 6,300 | 4,400 | 3,900 | 4,000 | 2,700 | 2,200 | 3,100 | 2,200 | 1,700 |
| 26,000 | 6,300 | 4,400 | 3,900 | 4,000 | 2,700 | 2,200 | 3,100 | 2,300 | 1,700 |
| 27,000 | 6,300 | 4,500 | 3,900 | 4,000 | 2,700 | 2,200 | 3,200 | 2,300 | 1,700 |
| 28,000 | 6,300 | 4,500 | 3,900 | 4,000 | 2,700 | 2,300 | 3,200 | 2,400 | 1,700 |
| 29,000 | 6,300 | 4,500 | 4,000 | 4,000 | 2,700 | 2,300 | 3,200 | 2,400 | 1,700 |
| 30,000 | 6,300 | 4,500 | 4,000 | 4,000 | 2,800 | 2,300 | 3,300 | 2,400 | 1,800 |
| 31,000 | 6,400 | 4,500 | 4,000 | 4,100 | 2,800 | 2,300 | 3,300 | 2,400 | 1,800 |
| 32,000 | 6,400 | 4,500 | 4,000 | 4,100 | 2,800 | 2,300 | 3,300 | 2,400 | 1,800 |
| 33,000 | 6,400 | 4,600 | 4,000 | 4,100 | 2,800 | 2,300 | 3,300 | 2,400 | 1,800 |
| 34,000 | 6,500 | 4,600 | 4,100 | 4,200 | 2,900 | 2,400 | 3,400 | 2,500 | 1,900 |
| 35,000 | 6,500 | 4,600 | 4,100 | 4,200 | 2,900 | 2,400 | 3,400 | 2,500 | 1,900 |
| 36,000 | 6,500 | 4,700 | 4,100 | 4,200 | 2,900 | 2,400 | 3,400 | 2,500 | 1,900 |
| 37,000 | 6,500 | 4,700 | 4,100 | 4,200 | 2,900 | 2,400 | 3,500 | 2,600 | 1,900 |
| 38,000 | 6,500 | 4,700 | 4,200 | 4,200 | 2,900 | 2,400 | 3,500 | 2,600 | 1,900 |
| 39,000 | 6,600 | 4,700 | 4,200 | 4,200 | 2,900 | 2,500 | 3,500 | 2,600 | 1,900 |
| 40,000 | 6,600 | 4,700 | 4,200 | 4,300 | 3,000 | 2,500 | 3,500 | 2,600 | 1,900 |

Figure 5.4c(2)

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientations.

LFR 1

**Troop Safety Distances—Meters
Large Free Rocket**

IMPACT Burst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 3,600 | 2,600 | 2,200 | 2,400 | 2,200 | 1,800 | 2,000 | 1,800 | 1,500 |
| 8,000 | 3,600 | 2,700 | 2,200 | 2,500 | 2,200 | 1,800 | 2,100 | 1,800 | 1,500 |
| 9,000 | 3,600 | 2,700 | 2,300 | 2,500 | 2,200 | 1,800 | 2,100 | 1,800 | 1,500 |
| 10,000 | 3,600 | 2,700 | 2,300 | 2,500 | 2,200 | 1,800 | 2,100 | 1,800 | 1,600 |
| 11,000 | 3,600 | 2,700 | 2,300 | 2,500 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 12,000 | 3,600 | 2,700 | 2,300 | 2,500 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |
| 13,000 | 3,700 | 2,700 | 2,300 | 2,600 | 2,300 | 1,900 | 2,100 | 1,900 | 1,600 |
| 14,000 | 3,700 | 2,800 | 2,400 | 2,600 | 2,300 | 1,900 | 2,200 | 1,900 | 1,600 |
| 15,000 | 3,700 | 2,800 | 2,400 | 2,600 | 2,300 | 1,900 | 2,200 | 1,900 | 1,600 |
| 16,000 | 3,700 | 2,800 | 2,400 | 2,600 | 2,300 | 2,000 | 2,200 | 1,900 | 1,700 |
| 17,000 | 3,700 | 2,800 | 2,400 | 2,600 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 18,000 | 3,700 | 2,800 | 2,400 | 2,600 | 2,300 | 2,000 | 2,200 | 2,000 | 1,700 |
| 19,000 | 3,800 | 2,900 | 2,400 | 2,700 | 2,400 | 2,000 | 2,200 | 2,000 | 1,700 |
| 20,000 | 3,800 | 2,900 | 2,500 | 2,700 | 2,400 | 2,000 | 2,300 | 2,000 | 1,700 |
| 21,000 | 3,800 | 2,900 | 2,500 | 2,700 | 2,400 | 2,000 | 2,300 | 2,000 | 1,700 |
| 22,000 | 3,800 | 2,900 | 2,500 | 2,700 | 2,400 | 2,100 | 2,300 | 2,000 | 1,800 |
| 23,000 | 3,800 | 2,900 | 2,500 | 2,700 | 2,400 | 2,100 | 2,300 | 2,100 | 1,800 |
| 24,000 | 3,900 | 2,900 | 2,500 | 2,700 | 2,500 | 2,100 | 2,300 | 2,100 | 1,800 |
| 25,000 | 3,900 | 3,000 | 2,500 | 2,800 | 2,500 | 2,100 | 2,400 | 2,100 | 1,800 |
| 26,000 | 3,900 | 3,000 | 2,600 | 2,800 | 2,500 | 2,100 | 2,400 | 2,100 | 1,800 |
| 27,000 | 3,900 | 3,000 | 2,600 | 2,800 | 2,500 | 2,100 | 2,400 | 2,100 | 1,900 |
| 28,000 | 3,900 | 3,000 | 2,600 | 2,800 | 2,500 | 2,200 | 2,400 | 2,100 | 1,900 |
| 29,000 | 3,900 | 3,000 | 2,600 | 2,800 | 2,500 | 2,200 | 2,400 | 2,200 | 1,900 |
| 30,000 | 4,000 | 3,000 | 2,600 | 2,800 | 2,600 | 2,200 | 2,400 | 2,200 | 1,900 |
| 31,000 | 4,000 | 3,100 | 2,700 | 2,900 | 2,600 | 2,200 | 2,500 | 2,200 | 1,900 |
| 32,000 | 4,000 | 3,100 | 2,700 | 2,900 | 2,600 | 2,200 | 2,500 | 2,200 | 1,900 |
| 33,000 | 4,000 | 3,100 | 2,700 | 2,900 | 2,600 | 2,300 | 2,500 | 2,200 | 2,000 |
| 34,000 | 4,000 | 3,100 | 2,700 | 2,900 | 2,600 | 2,300 | 2,500 | 2,300 | 2,000 |
| 35,000 | 4,000 | 3,100 | 2,700 | 2,900 | 2,600 | 2,300 | 2,500 | 2,300 | 2,000 |
| 36,000 | 4,100 | 3,100 | 2,700 | 3,000 | 2,700 | 2,300 | 2,500 | 2,300 | 2,000 |
| 37,000 | 4,100 | 3,200 | 2,800 | 3,000 | 2,700 | 2,300 | 2,600 | 2,300 | 2,000 |
| 38,000 | 4,100 | 3,200 | 2,800 | 3,000 | 2,700 | 2,300 | 2,600 | 2,300 | 2,000 |
| 39,000 | 4,100 | 3,200 | 2,800 | 3,000 | 2,700 | 2,400 | 2,600 | 2,300 | 2,100 |
| 40,000 | 4,100 | 3,200 | 2,800 | 3,000 | 2,700 | 2,400 | 2,600 | 2,400 | 2,100 |

Figure 5.4c(3).

NOTES: Initial effects only. Fallout governs.

The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See fig 5.5 for special friendly troop orientations.

Troop Safety Distances—Meters Large Free Rocket

GOLF/50 KT

LOW Airburst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEC
Risk | MOD
Risk | EMERC
Risk | NEC
Risk | MOD
Risk | EMERC
Risk | NEC
Risk | MOD
Risk | EMERC
Risk |
| 7,000 | 8,900 | 6,800 | 5,900 | 5,600 | 3,500 | 2,900 | 2,700 | 2,100 | 1,700 |
| 8,000 | 8,900 | 6,800 | 5,900 | 5,600 | 3,600 | 2,900 | 2,800 | 2,100 | 1,700 |
| 9,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 2,800 | 2,100 | 1,700 |
| 10,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 2,900 | 2,200 | 1,700 |
| 11,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 2,900 | 2,200 | 1,700 |
| 12,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,000 | 2,200 | 1,800 |
| 13,000 | 9,000 | 6,900 | 6,000 | 5,700 | 3,700 | 3,000 | 3,000 | 2,300 | 1,800 |
| 14,000 | 9,000 | 6,900 | 6,000 | 5,700 | 3,700 | 3,000 | 3,100 | 2,300 | 1,800 |
| 15,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,200 | 2,300 | 1,800 |
| 16,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,200 | 2,400 | 1,800 |
| 17,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,300 | 2,400 | 1,800 |
| 18,000 | 9,000 | 6,900 | 6,100 | 5,800 | 3,700 | 3,100 | 3,300 | 2,500 | 1,900 |
| 19,000 | 9,100 | 7,000 | 6,100 | 5,800 | 3,800 | 3,100 | 3,400 | 2,500 | 1,900 |
| 20,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,400 | 2,500 | 1,900 |
| 21,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,500 | 2,600 | 1,900 |
| 22,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,600 | 2,600 | 1,900 |
| 23,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 3,600 | 2,700 | 1,900 |
| 24,000 | 9,100 | 7,000 | 6,200 | 5,900 | 3,800 | 3,200 | 3,700 | 2,700 | 1,900 |
| 25,000 | 9,200 | 7,100 | 6,200 | 5,900 | 3,900 | 3,200 | 3,700 | 2,800 | 1,900 |
| 26,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,800 | 2,800 | 2,000 |
| 27,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,900 | 2,900 | 2,000 |
| 28,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 3,900 | 2,900 | 2,000 |
| 29,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 4,000 | 2,900 | 2,000 |
| 30,000 | 9,300 | 7,100 | 6,300 | 6,000 | 3,900 | 3,300 | 4,000 | 3,000 | 2,100 |
| 31,000 | 9,300 | 7,200 | 6,300 | 6,000 | 4,000 | 3,300 | 4,100 | 3,000 | 2,100 |
| 32,000 | 9,300 | 7,200 | 6,400 | 6,000 | 4,000 | 3,300 | 4,100 | 3,100 | 2,100 |
| 33,000 | 9,300 | 7,200 | 6,400 | 6,000 | 4,000 | 3,300 | 4,200 | 3,100 | 2,100 |
| 34,000 | 9,300 | 7,200 | 6,400 | 6,000 | 4,000 | 3,300 | 4,200 | 3,100 | 2,100 |
| 35,000 | 9,300 | 7,200 | 6,400 | 6,000 | 4,000 | 3,300 | 4,300 | 3,200 | 2,100 |
| 36,000 | 9,400 | 7,300 | 6,400 | 6,100 | 4,000 | 3,300 | 4,300 | 3,200 | 2,200 |
| 37,000 | 9,400 | 7,300 | 6,400 | 6,100 | 4,100 | 3,400 | 4,400 | 3,200 | 2,200 |
| 38,000 | 9,400 | 7,300 | 6,500 | 6,100 | 4,100 | 3,400 | 4,400 | 3,200 | 2,200 |
| 39,000 | 9,400 | 7,300 | 6,500 | 6,100 | 4,100 | 3,400 | 4,400 | 3,200 | 2,200 |
| 40,000 | 9,400 | 7,300 | 6,500 | 6,100 | 4,100 | 3,400 | 4,500 | 3,200 | 2,200 |

Figure 5.4d(1).

HIGH Airburst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEC
Risk | MOD
Risk | EMERC
Risk | NEC
Risk | MOD
Risk | EMERC
Risk | NEC
Risk | MOD
Risk | EMERC
Risk |
| 7,000 | 8,800 | 6,700 | 5,900 | 5,500 | 3,500 | 2,800 | 3,100 | 2,200 | 1,600 |
| 8,000 | 8,900 | 6,800 | 5,900 | 5,600 | 3,500 | 2,900 | 3,200 | 2,300 | 1,600 |
| 9,000 | 8,900 | 6,800 | 5,900 | 5,600 | 3,600 | 2,900 | 3,200 | 2,300 | 1,500 |
| 10,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,300 | 2,400 | 1,500 |
| 11,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,300 | 2,400 | 1,600 |
| 12,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,400 | 2,500 | 1,700 |
| 13,000 | 8,900 | 6,800 | 6,000 | 5,600 | 3,600 | 2,900 | 3,500 | 2,500 | 1,700 |
| 14,000 | 9,000 | 6,900 | 6,000 | 5,700 | 3,600 | 2,900 | 3,500 | 2,600 | 1,700 |
| 15,000 | 9,000 | 6,900 | 6,000 | 5,700 | 3,700 | 3,000 | 3,600 | 2,600 | 1,800 |
| 16,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,600 | 2,600 | 1,800 |
| 17,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,700 | 2,700 | 1,800 |
| 18,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,800 | 2,700 | 1,800 |
| 19,000 | 9,000 | 6,900 | 6,100 | 5,700 | 3,700 | 3,000 | 3,800 | 2,800 | 1,900 |
| 20,000 | 9,100 | 7,000 | 6,100 | 5,800 | 3,700 | 3,000 | 3,900 | 2,800 | 1,900 |
| 21,000 | 9,100 | 7,000 | 6,100 | 5,800 | 3,800 | 3,100 | 3,900 | 2,900 | 1,900 |
| 22,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 4,000 | 2,900 | 1,900 |
| 23,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 4,000 | 2,900 | 1,900 |
| 24,000 | 9,100 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 4,100 | 3,000 | 2,000 |
| 25,000 | 9,200 | 7,000 | 6,200 | 5,800 | 3,800 | 3,100 | 4,100 | 3,000 | 2,000 |
| 26,000 | 9,200 | 7,100 | 6,200 | 5,900 | 3,800 | 3,100 | 4,200 | 3,000 | 2,000 |
| 27,000 | 9,200 | 7,100 | 6,200 | 5,900 | 3,900 | 3,200 | 4,200 | 3,100 | 2,000 |
| 28,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 4,200 | 3,100 | 2,000 |
| 29,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 4,300 | 3,100 | 2,000 |
| 30,000 | 9,200 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 4,300 | 3,000 | 2,100 |
| 31,000 | 9,300 | 7,100 | 6,300 | 5,900 | 3,900 | 3,200 | 4,300 | 3,000 | 2,100 |
| 32,000 | 9,300 | 7,200 | 6,300 | 6,000 | 3,900 | 3,200 | 4,300 | 3,000 | 2,100 |
| 33,000 | 9,300 | 7,200 | 6,300 | 6,000 | 3,900 | 3,200 | 4,400 | 3,000 | 2,100 |
| 34,000 | 9,300 | 7,200 | 6,400 | 6,000 | 4,000 | 3,300 | 4,400 | 3,100 | 2,100 |
| 35,000 | 9,300 | 7,200 | 6,400 | 6,000 | 4,000 | 3,300 | 4,400 | 3,100 | 2,100 |
| 36,000 | 9,300 | 7,200 | 6,400 | 6,000 | 4,000 | 3,300 | 4,400 | 3,100 | 2,200 |
| 37,000 | 9,400 | 7,200 | 6,400 | 6,000 | 4,000 | 3,300 | 4,400 | 3,100 | 2,200 |
| 38,000 | 9,400 | 7,300 | 6,400 | 6,100 | 4,000 | 3,300 | 4,500 | 3,100 | 2,200 |
| 39,000 | 9,400 | 7,300 | 6,400 | 6,100 | 4,000 | 3,300 | 4,500 | 3,200 | 2,200 |
| 40,000 | 9,400 | 7,300 | 6,500 | 6,100 | 4,100 | 3,400 | 4,500 | 3,200 | 2,200 |

Figure 5.4d(2).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientation.

Troop Safety Distances—Meters Large Free Rocket

IMPACT Burst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 5,000 | 3,900 | 3,400 | 3,300 | 2,400 | 2,000 | 2,500 | 2,000 | 1,700 |
| 8,000 | 5,000 | 3,900 | 3,400 | 3,300 | 2,400 | 2,100 | 2,500 | 2,000 | 1,700 |
| 9,000 | 5,100 | 4,000 | 3,500 | 3,300 | 2,500 | 2,100 | 2,500 | 2,000 | 1,700 |
| 10,000 | 5,100 | 4,000 | 3,500 | 3,300 | 2,500 | 2,100 | 2,500 | 2,000 | 1,700 |
| 11,000 | 5,100 | 4,000 | 3,500 | 3,400 | 2,500 | 2,100 | 2,500 | 2,000 | 1,800 |
| 12,000 | 5,100 | 4,000 | 3,500 | 3,400 | 2,500 | 2,100 | 2,600 | 2,100 | 1,800 |
| 13,000 | 5,100 | 4,000 | 3,500 | 3,400 | 2,500 | 2,200 | 2,600 | 2,100 | 1,800 |
| 14,000 | 5,100 | 4,000 | 3,500 | 3,400 | 2,500 | 2,200 | 2,600 | 2,100 | 1,800 |
| 15,000 | 5,200 | 4,100 | 3,600 | 3,400 | 2,600 | 2,200 | 2,600 | 2,100 | 1,800 |
| 16,000 | 5,200 | 4,100 | 3,600 | 3,400 | 2,600 | 2,200 | 2,600 | 2,100 | 1,800 |
| 17,000 | 5,200 | 4,100 | 3,600 | 3,500 | 2,600 | 2,200 | 2,700 | 2,100 | 1,900 |
| 18,000 | 5,200 | 4,100 | 3,600 | 3,500 | 2,600 | 2,200 | 2,700 | 2,200 | 1,900 |
| 19,000 | 5,200 | 4,100 | 3,600 | 3,500 | 2,600 | 2,300 | 2,700 | 2,200 | 1,900 |
| 20,000 | 5,200 | 4,100 | 3,600 | 3,500 | 2,600 | 2,300 | 2,700 | 2,200 | 1,900 |
| 21,000 | 5,300 | 4,200 | 3,700 | 3,500 | 2,700 | 2,300 | 2,700 | 2,200 | 1,900 |
| 22,000 | 5,300 | 4,200 | 3,700 | 3,500 | 2,700 | 2,300 | 2,700 | 2,200 | 1,900 |
| 23,000 | 5,300 | 4,200 | 3,700 | 3,600 | 2,700 | 2,300 | 2,800 | 2,300 | 2,000 |
| 24,000 | 5,300 | 4,200 | 3,700 | 3,600 | 2,700 | 2,300 | 2,800 | 2,300 | 2,000 |
| 25,000 | 5,300 | 4,200 | 3,700 | 3,600 | 2,700 | 2,400 | 2,800 | 2,300 | 2,000 |
| 26,000 | 5,300 | 4,300 | 3,700 | 3,600 | 2,800 | 2,400 | 2,800 | 2,300 | 2,000 |
| 27,000 | 5,400 | 4,300 | 3,800 | 3,600 | 2,800 | 2,400 | 2,800 | 2,300 | 2,000 |
| 28,000 | 5,400 | 4,300 | 3,800 | 3,600 | 2,800 | 2,400 | 2,800 | 2,300 | 2,000 |
| 29,000 | 5,400 | 4,300 | 3,800 | 3,700 | 2,800 | 2,400 | 2,900 | 2,400 | 2,100 |
| 30,000 | 5,400 | 4,300 | 3,800 | 3,700 | 2,800 | 2,400 | 2,900 | 2,400 | 2,100 |
| 31,000 | 5,400 | 4,300 | 3,800 | 3,700 | 2,800 | 2,500 | 2,900 | 2,400 | 2,100 |
| 32,000 | 5,500 | 4,400 | 3,900 | 3,700 | 2,900 | 2,500 | 2,900 | 2,400 | 2,100 |
| 33,000 | 5,500 | 4,400 | 3,900 | 3,700 | 2,900 | 2,500 | 2,900 | 2,400 | 2,100 |
| 34,000 | 5,500 | 4,400 | 3,900 | 3,800 | 2,900 | 2,500 | 2,900 | 2,400 | 2,200 |
| 35,000 | 5,500 | 4,400 | 3,900 | 3,800 | 2,900 | 2,500 | 3,000 | 2,500 | 2,200 |
| 36,000 | 5,500 | 4,400 | 3,900 | 3,800 | 2,900 | 2,600 | 3,000 | 2,500 | 2,200 |
| 37,000 | 5,500 | 4,400 | 3,900 | 3,800 | 2,900 | 2,600 | 3,000 | 2,500 | 2,200 |
| 38,000 | 5,600 | 4,500 | 4,000 | 3,800 | 3,000 | 2,600 | 3,000 | 2,500 | 2,200 |
| 39,000 | 5,600 | 4,500 | 4,000 | 3,800 | 3,000 | 2,600 | 3,000 | 2,500 | 2,200 |
| 40,000 | 5,600 | 4,500 | 4,000 | 3,900 | 3,000 | 2,600 | 3,100 | 2,500 | 2,300 |

Figure 5.4d(3).

NOTE: Initial effects only. Fallout governs.

The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientations.

Troop Safety Distances—Meters Large Free Rocket

HOTEL/100 KT

LOW Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 11,300 | 9,000 | 7,700 | 7,200 | 4,700 | 3,800 | 3,400 | 2,500 | 1,800 |
| 8,000 | 11,600 | 9,200 | 7,900 | 7,400 | 4,800 | 3,800 | 3,400 | 2,500 | 1,800 |
| 9,000 | 11,600 | 9,200 | 7,900 | 7,400 | 4,900 | 3,900 | 3,500 | 2,600 | 1,800 |
| 10,000 | 11,600 | 9,200 | 7,900 | 7,400 | 4,900 | 3,900 | 3,500 | 2,600 | 1,900 |
| 11,000 | 11,600 | 9,200 | 7,900 | 7,500 | 4,900 | 3,900 | 3,600 | 2,600 | 1,900 |
| 12,000 | 11,700 | 9,300 | 8,000 | 7,500 | 4,900 | 3,900 | 3,600 | 2,700 | 1,900 |
| 13,000 | 11,700 | 9,300 | 8,000 | 7,500 | 4,900 | 3,900 | 3,600 | 2,700 | 1,900 |
| 14,000 | 11,700 | 9,300 | 8,000 | 7,500 | 4,900 | 3,900 | 3,700 | 2,700 | 1,900 |
| 15,000 | 11,700 | 9,300 | 8,000 | 7,500 | 5,000 | 4,000 | 3,800 | 2,800 | 1,900 |
| 16,000 | 11,700 | 9,300 | 8,000 | 7,500 | 5,000 | 4,000 | 3,800 | 2,900 | 2,000 |
| 17,000 | 11,700 | 9,300 | 8,000 | 7,600 | 5,000 | 4,000 | 3,900 | 2,900 | 2,000 |
| 18,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,000 | 4,000 | 3,900 | 2,900 | 2,000 |
| 19,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,000 | 4,000 | 4,000 | 2,900 | 2,000 |
| 20,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,100 | 4,000 | 4,000 | 3,000 | 2,000 |
| 21,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,100 | 4,100 | 4,100 | 3,000 | 2,000 |
| 22,000 | 11,800 | 9,400 | 8,100 | 7,700 | 5,100 | 4,100 | 4,100 | 3,100 | 2,000 |
| 23,000 | 11,800 | 9,400 | 8,100 | 7,700 | 5,100 | 4,100 | 4,200 | 3,100 | 2,100 |
| 24,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,100 | 4,100 | 4,300 | 3,100 | 2,100 |
| 25,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,100 | 4,100 | 4,300 | 3,200 | 2,200 |
| 26,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,200 | 4,100 | 4,400 | 3,200 | 2,200 |
| 27,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,200 | 4,200 | 4,400 | 3,300 | 2,300 |
| 28,000 | 11,900 | 9,500 | 8,200 | 7,800 | 5,200 | 4,200 | 4,500 | 3,300 | 2,300 |
| 29,000 | 12,000 | 9,500 | 8,200 | 7,800 | 5,200 | 4,200 | 4,600 | 3,300 | 2,300 |
| 30,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,200 | 4,200 | 4,600 | 3,400 | 2,400 |
| 31,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,200 | 4,200 | 4,700 | 3,400 | 2,400 |
| 32,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,300 | 4,200 | 4,700 | 3,500 | 2,400 |
| 33,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,300 | 4,300 | 4,800 | 3,500 | 2,500 |
| 34,000 | 12,000 | 9,600 | 8,300 | 7,900 | 5,300 | 4,300 | 4,900 | 3,600 | 2,500 |
| 35,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,300 | 4,300 | 4,900 | 3,600 | 2,500 |
| 36,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,300 | 4,300 | 5,000 | 3,700 | 2,600 |
| 37,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,300 | 4,300 | 5,000 | 3,700 | 2,600 |
| 38,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,400 | 4,300 | 5,100 | 3,800 | 2,600 |
| 39,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,400 | 4,400 | 5,100 | 3,900 | 2,600 |
| 40,000 | 12,100 | 9,700 | 8,400 | 8,000 | 5,400 | 4,400 | 5,200 | 4,000 | 2,600 |

Figure 5.4e(1).

HIGH Airburst

| Range
(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 11,600 | 9,200 | 7,900 | 7,400 | 4,800 | 3,800 | 3,800 | 2,700 | 1,700 |
| 8,000 | 11,600 | 9,200 | 7,900 | 7,400 | 4,800 | 3,800 | 3,800 | 2,800 | 1,800 |
| 9,000 | 11,600 | 9,200 | 7,900 | 7,400 | 4,800 | 3,800 | 3,900 | 2,800 | 1,800 |
| 10,000 | 11,600 | 9,200 | 7,900 | 7,400 | 4,900 | 3,800 | 4,000 | 2,900 | 1,900 |
| 11,000 | 11,600 | 9,200 | 7,900 | 7,400 | 4,900 | 3,900 | 4,000 | 2,900 | 1,900 |
| 12,000 | 11,600 | 9,200 | 7,900 | 7,500 | 4,900 | 3,900 | 4,100 | 2,900 | 2,000 |
| 13,000 | 11,700 | 9,300 | 8,000 | 7,500 | 4,900 | 3,900 | 4,100 | 3,000 | 2,000 |
| 14,000 | 11,700 | 9,300 | 8,000 | 7,500 | 4,900 | 3,900 | 4,200 | 3,000 | 2,000 |
| 15,000 | 11,700 | 9,300 | 8,000 | 7,500 | 4,900 | 3,900 | 4,300 | 3,100 | 2,100 |
| 16,000 | 11,700 | 9,300 | 8,000 | 7,500 | 5,000 | 3,900 | 4,300 | 3,100 | 2,100 |
| 17,000 | 11,700 | 9,300 | 8,000 | 7,500 | 5,000 | 4,000 | 4,400 | 3,200 | 2,200 |
| 18,000 | 11,700 | 9,300 | 8,000 | 7,600 | 5,000 | 4,000 | 4,500 | 3,200 | 2,200 |
| 19,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,000 | 4,000 | 4,500 | 3,300 | 2,200 |
| 20,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,000 | 4,000 | 4,600 | 3,300 | 2,200 |
| 21,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,000 | 4,000 | 4,600 | 3,300 | 2,300 |
| 22,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,100 | 4,000 | 4,700 | 3,400 | 2,300 |
| 23,000 | 11,800 | 9,400 | 8,100 | 7,600 | 5,100 | 4,000 | 4,800 | 3,400 | 2,300 |
| 24,000 | 11,800 | 9,400 | 8,100 | 7,700 | 5,100 | 4,100 | 4,800 | 3,500 | 2,300 |
| 25,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,100 | 4,100 | 4,900 | 3,600 | 2,400 |
| 26,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,100 | 4,100 | 4,900 | 3,700 | 2,400 |
| 27,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,100 | 4,100 | 5,000 | 3,700 | 2,400 |
| 28,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,100 | 4,100 | 5,000 | 3,800 | 2,400 |
| 29,000 | 11,900 | 9,500 | 8,200 | 7,700 | 5,200 | 4,100 | 5,100 | 3,800 | 2,400 |
| 30,000 | 12,000 | 9,500 | 8,200 | 7,800 | 5,200 | 4,200 | 5,100 | 3,900 | 2,400 |
| 31,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,200 | 4,200 | 5,200 | 3,900 | 2,500 |
| 32,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,200 | 4,200 | 5,200 | 3,900 | 2,500 |
| 33,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,200 | 4,200 | 5,200 | 3,900 | 2,500 |
| 34,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,200 | 4,200 | 5,300 | 3,900 | 2,500 |
| 35,000 | 12,000 | 9,600 | 8,300 | 7,800 | 5,300 | 4,200 | 5,300 | 4,000 | 2,500 |
| 36,000 | 12,100 | 9,600 | 8,300 | 7,900 | 5,300 | 4,300 | 5,300 | 4,000 | 2,600 |
| 37,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,300 | 4,300 | 5,400 | 4,000 | 2,600 |
| 38,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,300 | 4,300 | 5,400 | 4,000 | 2,600 |
| 39,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,300 | 4,300 | 5,400 | 4,000 | 2,600 |
| 40,000 | 12,100 | 9,700 | 8,400 | 7,900 | 5,300 | 4,300 | 5,500 | 4,000 | 2,600 |

Figure 5.4e(2).

NOTE: The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientations.

LFR 1

Troop Safety Distances—Meters Large Free Rocket

IMPACT Burst

| Range

(meters) | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------|---|-------------|---------------|--------------------------------|-------------|---------------|----------------------------------|-------------|---------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk | NEG
Risk | MOD
Risk | EMERG
Risk |
| 7,000 | 6,600 | 5,200 | 4,300 | 4,300 | 2,900 | 2,300 | 3,100 | 2,400 | 1,800 |
| 8,000 | 6,600 | 5,200 | 4,300 | 4,300 | 2,900 | 2,300 | 3,100 | 2,400 | 1,800 |
| 9,000 | 6,600 | 5,200 | 4,300 | 4,300 | 2,900 | 2,400 | 3,100 | 2,400 | 1,900 |
| 10,000 | 6,600 | 5,200 | 4,300 | 4,300 | 2,900 | 2,400 | 3,100 | 2,400 | 1,900 |
| 11,000 | 6,600 | 5,200 | 4,400 | 4,400 | 2,900 | 2,400 | 3,100 | 2,400 | 1,900 |
| 12,000 | 6,700 | 5,300 | 4,400 | 4,400 | 3,000 | 2,400 | 3,200 | 2,500 | 1,900 |
| 13,000 | 6,700 | 5,300 | 4,400 | 4,400 | 3,000 | 2,400 | 3,200 | 2,500 | 1,900 |
| 14,000 | 6,700 | 5,300 | 4,400 | 4,400 | 3,000 | 2,400 | 3,200 | 2,500 | 1,900 |
| 15,000 | 6,700 | 5,300 | 4,400 | 4,400 | 3,000 | 2,500 | 3,200 | 2,500 | 2,000 |
| 16,000 | 6,700 | 5,300 | 4,400 | 4,400 | 3,000 | 2,500 | 3,200 | 2,500 | 2,000 |
| 17,000 | 6,700 | 5,300 | 4,500 | 4,500 | 3,000 | 2,500 | 3,300 | 2,600 | 2,000 |
| 18,000 | 6,800 | 5,400 | 4,500 | 4,500 | 3,100 | 2,500 | 3,300 | 2,600 | 2,000 |
| 19,000 | 6,800 | 5,400 | 4,500 | 4,500 | 3,100 | 2,500 | 3,300 | 2,600 | 2,000 |
| 20,000 | 6,800 | 5,400 | 4,500 | 4,500 | 3,100 | 2,500 | 3,300 | 2,600 | 2,100 |
| 21,000 | 6,800 | 5,400 | 4,500 | 4,500 | 3,100 | 2,600 | 3,300 | 2,600 | 2,100 |
| 22,000 | 6,800 | 5,400 | 4,500 | 4,500 | 3,100 | 2,600 | 3,300 | 2,600 | 2,100 |
| 23,000 | 6,900 | 5,500 | 4,600 | 4,600 | 3,200 | 2,600 | 3,400 | 2,700 | 2,100 |
| 24,000 | 6,900 | 5,500 | 4,600 | 4,600 | 3,200 | 2,600 | 3,400 | 2,700 | 2,100 |
| 25,000 | 6,900 | 5,500 | 4,600 | 4,600 | 3,200 | 2,600 | 3,400 | 2,700 | 2,100 |
| 26,000 | 6,900 | 5,500 | 4,600 | 4,600 | 3,200 | 2,700 | 3,400 | 2,700 | 2,200 |
| 27,000 | 6,900 | 5,500 | 4,600 | 4,600 | 3,200 | 2,700 | 3,400 | 2,700 | 2,200 |
| 28,000 | 6,900 | 5,500 | 4,700 | 4,700 | 3,200 | 2,700 | 3,400 | 2,700 | 2,200 |
| 29,000 | 7,000 | 5,600 | 4,700 | 4,700 | 3,300 | 2,700 | 3,500 | 2,800 | 2,200 |
| 30,000 | 7,000 | 5,600 | 4,700 | 4,700 | 3,300 | 2,700 | 3,500 | 2,800 | 2,200 |
| 31,000 | 7,000 | 5,600 | 4,700 | 4,700 | 3,300 | 2,700 | 3,500 | 2,800 | 2,200 |
| 32,000 | 7,000 | 5,600 | 4,700 | 4,700 | 3,300 | 2,800 | 3,500 | 2,800 | 2,300 |
| 33,000 | 7,000 | 5,600 | 4,700 | 4,700 | 3,300 | 2,800 | 3,500 | 2,800 | 2,300 |
| 34,000 | 7,000 | 5,600 | 4,800 | 4,800 | 3,300 | 2,800 | 3,500 | 2,800 | 2,300 |
| 35,000 | 7,100 | 5,700 | 4,800 | 4,800 | 3,400 | 2,800 | 3,600 | 2,900 | 2,300 |
| 36,000 | 7,100 | 5,700 | 4,800 | 4,800 | 3,400 | 2,800 | 3,600 | 2,900 | 2,300 |
| 37,000 | 7,100 | 5,700 | 4,800 | 4,800 | 3,400 | 2,800 | 3,600 | 2,900 | 2,400 |
| 38,000 | 7,100 | 5,700 | 4,800 | 4,800 | 3,400 | 2,900 | 3,600 | 2,900 | 2,400 |
| 39,000 | 7,100 | 5,700 | 4,800 | 4,800 | 3,400 | 2,900 | 3,600 | 2,900 | 2,400 |
| 40,000 | 7,100 | 5,700 | 4,900 | 4,900 | 3,400 | 2,900 | 3,700 | 3,000 | 2,400 |

Figure 5.4e(3).

NOTES: Initial effects only. Fallout governs.

The troop safety distances include the radius of safety for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly troop orientation. See figure 5.5 for special friendly troop orientations.

SUPPLEMENTARY TROOP SAFETY Tables Large Free Rocket-All Yields

The troop safety distances in figures 5.4a(1) through 5.4a(3) are based on the friendly troop orientation shown in figure 1, below. The elliptical delivery pattern of the large free rocket may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5 below.

Special Troop Safety Orientations

LEGEND

DGZ - Desired ground zero.

R_s - Safety radius

d_b - Buffer distance.

~ - Friendly troops.

→ - Direction of fire.

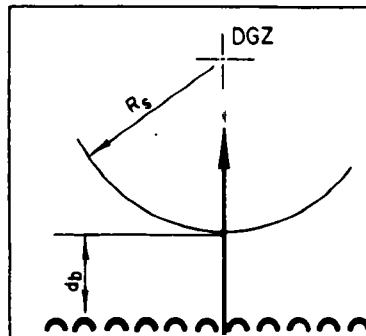


Figure 1. Straight line, perpendicular delivery.

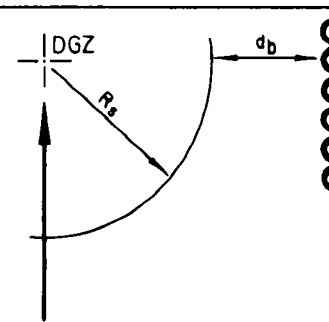


Figure 2. Straight line, parallel delivery.

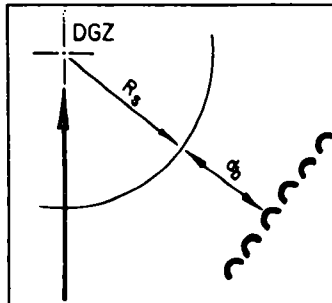


Figure 3. Straight-line, 45° delivery.

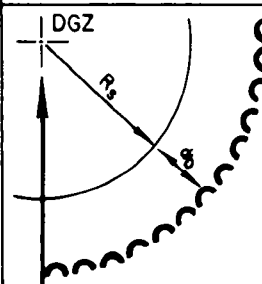


Figure 4. Quarter circle.

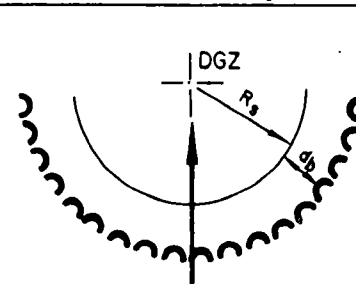


Figure 5. Half circle.

When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figures 5.4a(1) through 5.4a(3) must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options-All Yields | | | | | | | | | |
|--|-------------------|---------------|---------|---------|----------|-------------------|---------------|---------|---------|
| Range | Straight-line | Straight-line | Quarter | Half | Range | Straight-line | Straight-line | Quarter | Half |
| (meters) | parallel delivery | 45° delivery | circle | circle | (meters) | parallel delivery | 45° delivery | circle | circle |
| | (Fig 2) | (Fig 3) | (Fig 4) | (Fig 5) | | (Fig 2) | (Fig 3) | (Fig 4) | (Fig 5) |
| 7,000 | +200 | +100 | +200 | +200 | 24,000 | +400 | +300 | +500 | +500 |
| 8,000 | +200 | +100 | +200 | +200 | 25,000 | +400 | +300 | +500 | +500 |
| 9,000 | +200 | +100 | +200 | +200 | 26,000 | +400 | +300 | +500 | +500 |
| 10,000 | +200 | +100 | +200 | +200 | 27,000 | +500 | +300 | +500 | +500 |
| 11,000 | +200 | +200 | +200 | +300 | 28,000 | +500 | +300 | +600 | +600 |
| 12,000 | +200 | +200 | +300 | +300 | 29,000 | +500 | +300 | +600 | +600 |
| 13,000 | +200 | +200 | +300 | +300 | 30,000 | +500 | +300 | +600 | +600 |
| 14,000 | +300 | +200 | +300 | +300 | 31,000 | +500 | +300 | +600 | +600 |
| 15,000 | +300 | +200 | +300 | +300 | 32,000 | +500 | +400 | +600 | +600 |
| 16,000 | +300 | +200 | +300 | +300 | 33,000 | +500 | +400 | +600 | +700 |
| 17,000 | +300 | +200 | +400 | +400 | 34,000 | +600 | +400 | +700 | +700 |
| 18,000 | +300 | +200 | +400 | +400 | 35,000 | +600 | +400 | +700 | +700 |
| 19,000 | +300 | +200 | +400 | +400 | 36,000 | +600 | +400 | +700 | +700 |
| 20,000 | +300 | +200 | +400 | +400 | 37,000 | +600 | +400 | +700 | +700 |
| 21,000 | +400 | +200 | +400 | +400 | 38,000 | +600 | +400 | +700 | +800 |
| 22,000 | +400 | +300 | +400 | +500 | 39,000 | +600 | +400 | +800 | +800 |
| 23,000 | +400 | +300 | +500 | +500 | 40,000 | +600 | +400 | +800 | +800 |

Figure 5.5.

LFR 1

CASUALTY and DAMAGE Tables
Large Free Rocket

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,050 | | 0 | | | | | | | | | | | 3,025 | 2,150 | 1,700 | 1,750 | 1,350 | 875 | 1,225 | 875 | 350 |
| 1,025 | | 225 | | | | | | | | | | 0 | 3,025 | 2,150 | 1,700 | 1,750 | 1,350 | 900 | 1,250 | 900 | 425 |
| 1,000 | | 325 | | | | | 0 | | | | | 175 | 3,025 | 2,150 | 1,725 | 1,775 | 1,375 | 925 | 1,275 | 925 | 475 |
| 975 | | 400 | | | | | 150 | | | | | 275 | 3,025 | 2,175 | 1,750 | 1,775 | 1,400 | 950 | 1,300 | 950 | 525 |
| 950 | | 450 | | | | | 250 | | | 0 | | 350 | 3,050 | 2,175 | 1,750 | 1,800 | 1,400 | 1,000 | 1,300 | 975 | 575 |
| 925 | | 500 | | | | | 350 | | | 200 | | 425 | 3,050 | 2,200 | 1,775 | 1,800 | 1,425 | 1,000 | 1,325 | 1,000 | 600 |
| 900 | | 550 | | | | | 400 | | | 300 | 0 | 475 | 3,050 | 2,200 | 1,775 | 1,825 | 1,450 | 1,025 | 1,350 | 1,025 | 650 |
| 875 | | 575 | | | | | 450 | | | 350 | 650 | 650 | 3,075 | 2,225 | 1,800 | 1,825 | 1,450 | 1,050 | 1,350 | 1,050 | 675 |
| 850 | | 625 | | | | | 500 | | | 400 | 750 | 750 | 3,075 | 2,225 | 1,800 | 1,850 | 1,475 | 1,075 | 1,375 | 1,075 | 700 |
| 825 | | 650 | | 0 | | | 550 | | | 450 | 850 | 850 | 3,075 | 2,225 | 1,800 | 1,850 | 1,500 | 1,100 | 1,400 | 1,075 | 725 |
| 800 | 0 | 675 | | 200 | | | 575 | | | 500 | 925 | 925 | 3,100 | 2,250 | 1,825 | 1,875 | 1,500 | 1,100 | 1,400 | 1,100 | 750 |
| 775 | 175 | 700 | | 275 | | | 600 | | | 550 | 975 | 975 | 3,100 | 2,250 | 1,825 | 1,875 | 1,525 | 1,125 | 1,425 | 1,125 | 800 |
| 750 | 275 | 725 | | 350 | 0 | | 650 | | | 775 | 1,050 | 1,050 | 3,100 | 2,275 | 1,850 | 1,900 | 1,525 | 1,150 | 1,425 | 1,150 | 800 |
| 725 | 325 | 750 | | 400 | 175 | | 675 | | | 0 | 600 | 1,150 | 3,100 | 2,275 | 1,850 | 1,900 | 1,550 | 1,150 | 1,550 | 1,150 | 825 |
| 700 | 375 | 775 | | 425 | 250 | | 700 | | | 150 | 625 | 1,300 | 3,125 | 2,275 | 1,875 | 1,900 | 1,550 | 1,175 | 1,700 | 1,175 | 850 |
| 675 | 425 | 800 | | 475 | 300 | | 725 | | | 225 | 650 | 1,500 | 3,125 | 2,275 | 1,875 | 1,925 | 1,550 | 1,200 | 1,725 | 1,175 | 875 |
| 650 | 450 | 825 | | 500 | 350 | | 750 | | 0 | 300 | 675 | 1,600 | 3,125 | 2,300 | 1,875 | 1,925 | 1,575 | 1,200 | 1,725 | 1,200 | 900 |
| 625 | 500 | 850 | 0 | 525 | 400 | | 750 | | 175 | 350 | 700 | 1,625 | 3,125 | 2,300 | 1,900 | 1,925 | 1,575 | 1,225 | 1,725 | 1,200 | 925 |
| 600 | 525 | 850 | 150 | 550 | 450 | | 775 | | 250 | 375 | 725 | 1,650 | 3,125 | 2,300 | 1,900 | 1,950 | 1,600 | 1,225 | 1,725 | 1,225 | 925 |
| 575 | 550 | 875 | 225 | 575 | 475 | | 800 | | 300 | 425 | 750 | 1,650 | 3,150 | 2,300 | 1,900 | 1,950 | 1,600 | 1,250 | 1,725 | 1,225 | 950 |
| 550 | 575 | 900 | 300 | 600 | 500 | | 825 | | 350 | 450 | 775 | 1,625 | 3,150 | 2,325 | 1,900 | 1,950 | 1,600 | 1,250 | 1,750 | 1,250 | 950 |
| 525 | 600 | 900 | 325 | 625 | 525 | | 825 | | 375 | 525 | 775 | 1,625 | 3,150 | 2,325 | 1,925 | 1,950 | 1,625 | 1,275 | 1,725 | 1,250 | 975 |
| 500 | 625 | 925 | 375 | 650 | 550 | | 850 | | 425 | 825 | 825 | 1,600 | 3,150 | 2,325 | 1,925 | 1,975 | 1,625 | 1,275 | 1,700 | 1,275 | 975 |
| 475 | 650 | 925 | 400 | 675 | 575 | | 875 | 0 | 450 | 875 | 875 | 1,550 | 3,150 | 2,325 | 1,925 | 1,975 | 1,625 | 1,275 | 1,675 | 1,275 | 1,000 |
| 450 | 650 | 950 | 425 | 700 | 600 | | 875 | 100 | 475 | 925 | 925 | 1,525 | 3,150 | 2,350 | 1,950 | 1,975 | 1,650 | 1,300 | 1,650 | 1,300 | 1,000 |
| 425 | 675 | 950 | 450 | 700 | 600 | | 875 | 175 | 500 | 925 | 925 | 1,475 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,300 | 1,625 | 1,300 | 1,025 |
| 400 | 700 | 975 | 475 | 725 | 625 | | 900 | 225 | 525 | 925 | 925 | 1,450 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,300 | 1,600 | 1,300 | 1,025 |
| 375 | 700 | 975 | 500 | 725 | 650 | | 900 | 275 | 525 | 925 | 925 | 1,425 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,325 | 1,575 | 1,300 | 1,050 |
| 350 | 725 | 975 | 500 | 750 | 650 | | 925 | 300 | 550 | 900 | 900 | 1,400 | 3,175 | 2,350 | 1,950 | 2,000 | 1,675 | 1,325 | 1,575 | 1,325 | 1,050 |
| 325 | 725 | 1,000 | 525 | 750 | 675 | | 925 | 325 | 575 | 875 | 875 | 1,375 | 3,175 | 2,350 | 1,975 | 2,000 | 1,675 | 1,325 | 1,575 | 1,325 | 1,050 |
| 300 | 750 | 1,000 | 550 | 775 | 675 | | 950 | 350 | 575 | 850 | 900 | 1,350 | 3,175 | 2,350 | 1,975 | 2,000 | 1,675 | 1,350 | 1,600 | 1,325 | 1,075 |
| 275 | 750 | 1,000 | 550 | 775 | 700 | | 950 | 375 | 600 | 850 | 900 | 1,300 | 3,175 | 2,375 | 1,975 | 2,025 | 1,675 | 1,350 | 1,600 | 1,325 | 1,075 |
| 250 | 750 | 1,025 | 575 | 775 | 700 | | 950 | 400 | 600 | 825 | 900 | 1,275 | 3,175 | 2,375 | 1,975 | 2,025 | 1,675 | 1,350 | 1,600 | 1,350 | 1,075 |
| 225 | 775 | 1,025 | 575 | 800 | 700 | | 950 | 400 | 600 | 800 | 925 | 1,250 | 3,175 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,075 |
| 200 | 775 | 1,025 | 600 | 800 | 725 | | 975 | 425 | 625 | 800 | 925 | 1,225 | 3,175 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 175 | 775 | 1,025 | 600 | 800 | 725 | | 975 | 425 | 625 | 775 | 925 | 1,200 | 3,200 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 150 | 775 | 1,025 | 600 | 800 | 725 | | 975 | 425 | 625 | 750 | 925 | 1,175 | 3,200 | 2,375 | 2,000 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 125 | 775 | 1,050 | 600 | 800 | 725 | | 975 | 450 | 650 | 750 | 925 | 1,150 | 3,200 | 2,375 | 2,000 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 100 | 800 | 1,050 | 625 | 825 | 750 | | 975 | 450 | 650 | 725 | 950 | 1,125 | 3,150 | 2,375 | 1,950 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 75 | 800 | 1,050 | 625 | 825 | 750 | | 975 | 450 | 650 | 700 | 950 | 1,125 | 2,800 | 2,200 | 1,800 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 50 | 800 | 1,050 | 625 | 825 | 750 | | 975 | 450 | 650 | 725 | 950 | 1,075 | 2,550 | 2,025 | 1,650 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |
| 25 | 800 | 1,050 | 625 | 825 | 750 | | 975 | 450 | 650 | 725 | 950 | 1,075 | 2,275 | 1,850 | 1,525 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |
| 0 | 800 | 1,050 | 625 | 825 | 750 | | 975 | 450 | 650 | 725 | 950 | 1,050 | 2,125 | 1,700 | 1,375 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |

HOB_{fs} = 52 mLow HOB_{min} = 91 mHigh HOB_{min} = 206 mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 5.6a.

CASUALTY and DAMAGE Tables Large Free Rocket

DELTA/5 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d Degree Burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,050 | | | | | | | 1,175 | | | 2,875 | | | 0-5 | | | | 0-500 | |
| 1,025 | | | | | | | 1,200 | | | 2,875 | | | 0-5 | | | | 0-550 | |
| 1,000 | | | | | | | 1,225 | | | 2,875 | | | 0-10 | | | | 0-600 | |
| 975 | | | | | | | 1,225 | | | 2,900 | | | 0-10 | | | | 0-600 | |
| 950 | | | | | | | 1,250 | | | 2,900 | | | 0-10 | | | | 0-650 | |
| 925 | | | | | | | 1,275 | | | 2,900 | | | 0-10 | | | | 0-700 | |
| 900 | | | | | | | 1,300 | | | 2,900 | | | 0-15 | | | | 0-750 | |
| 875 | | | | | | | 1,300 | | | 2,925 | | | 0-15 | | | | 0-750 | |
| 850 | | | | | | | 1,325 | | | 2,925 | | | 0-20 | | | | 0-800 | |
| 825 | | | | | | | 1,350 | | | 2,925 | | 0 | 0-20 | | 0 | | 0-800 | |
| 800 | | | | | | | 1,350 | | | 2,925 | | 0-5 | 0-25 | | | 0-50 | 0-850 | |
| 775 | | | | | | | 1,375 | | | 2,900 | | 0-5 | 0-30 | | | 0-200 | 0-850 | |
| 750 | | | | | | | 1,375 | 0 | | 2,900 | | 0-5 | 0-35 | | | 0-300 | 0-900 | |
| 725 | | | | | | | 1,400 | 75 | | 2,900 | | 0-5 | 0-45 | | | 0-350 | 0-900 | |
| 700 | | | | | | | 1,400 | 200 | | 2,900 | | 0-5 | 5-50 | | | 0-400 | 50-950 | |
| 675 | | | | | | | 1,425 | 275 | | 2,875 | | 0-10 | 5-65 | | | 0-450 | 200-950 | |
| 650 | | | | | | | 1,425 | 325 | | 2,875 | | 0-10 | 5-80 | | | 0-500 | 300-950 | |
| 625 | | | | | | | 1,450 | 375 | | 2,850 | | 0-10 | 5-100 | | | 0-500 | 350-1,000 | |
| 600 | | | | | | | 1,450 | 425 | | 2,850 | | 0-10 | 5-120 | | | 0-550 | 400-1,000 | |
| 575 | | | | | | | 1,475 | 450 | | 2,850 | 0 | 0-15 | 10-150 | | 0 | 0-600 | 400-1,000 | |
| 550 | | | | | | | 1,475 | 475 | | 2,825 | 0-5 | 0-20 | 10-190 | | 0-50 | 0-600 | 450-1,050 | |
| 525 | | | | | | | 1,475 | 500 | | 2,825 | 0-5 | 0-25 | 10-250 | | 0-200 | 0-650 | 450-1,050 | |
| 500 | | | | 0 | | | 1,500 | 525 | | 2,800 | 0-5 | 0-25 | 15-300 | | 0-250 | 0-650 | 500-1,050 | |
| 475 | | | | 50 | | | 1,500 | 550 | | 2,800 | 0-5 | 0-40 | 20-450 | | 0-300 | 0-650 | 550-1,050 | |
| 450 | | | | 100 | | | 1,500 | 575 | | 2,775 | 0-5 | 5-50 | 25-570 | | 0-300 | 50-700 | 550-1,100 | |
| 425 | | | | 150 | | | 1,525 | 600 | | 2,750 | 0-10 | 5-70 | 30-750 | | 0-350 | 150-700 | 600-1,100 | |
| 400 | 0 | | | 200 | | 0 | 1,525 | 600 | 0 | 2,725 | 0-10 | 5-90 | 40-1,000 | | 0-400 | 200-700 | 600-1,100 | |
| 375 | 50 | | | 250 | | 400 | 1,525 | 625 | 125 | 2,725 | 0-15 | 5-110 | 50-1,300 | | 0-400 | 250-750 | 600-1,100 | |
| 350 | 100 | | | 300 | | 425 | 1,525 | 650 | 175 | 2,700 | 0-15 | 10-140 | 70-1,600 | | 0-400 | 300-750 | 650-1,100 | |
| 325 | 150 | | 0 | 325 | | 425 | 1,550 | 650 | 225 | 2,675 | 0-20 | 10-165 | 80-1,980 | | 0-400 | 350-750 | 650-1,100 | |
| 300 | 250 | 0 | 50 | 350 | | 425 | 1,550 | 675 | 250 | 2,650 | 0-25 | 10-200 | 100-2,340 | | 0-450 | 350-750 | 650-1,150 | |
| 275 | 375 | 25 | 100 | 375 | | 450 | 1,550 | 675 | 275 | 2,625 | 0-25 | 10-240 | 120-2,820 | | 0-500 | 400-800 | 650-1,150 | |
| 250 | 400 | 75 | 150 | 400 | | 450 | 1,550 | 675 | 300 | 2,600 | 0-35 | 15-275 | 140-3,300 | | 0-500 | 400-800 | 700-1,150 | |
| 225 | 425 | 100 | 175 | 400 | | 450 | 1,550 | 700 | 325 | 2,575 | 0-35 | 15-325 | 160-3,900 | | 0-550 | 400-800 | 700-1,150 | |
| 200 | 450 | 125 | 200 | 425 | | 475 | 1,550 | 700 | 350 | 2,550 | 5-50 | 20-450 | 220-5,400 | | 50-550 | 450-800 | 700-1,150 | |
| 175 | 450 | 175 | 225 | 450 | 0 | 475 | 1,575 | 700 | 350 | 2,525 | 5-60 | 25-550 | 280-6,600 | 0 | 100-550 | 450-800 | 700-1,150 | 0 |
| 150 | 475 | 225 | 225 | 450 | 400 | 500 | 1,575 | 725 | 375 | 2,475 | 5-80 | 30-700 | 340-8,400 | 0-5 | 150-550 | 450-800 | 700-1,150 | 0-50 |
| 125 | 500 | 275 | 250 | 475 | 425 | 500 | 1,575 | 725 | 375 | 2,450 | 5-100 | 40-940 | 450-11,000 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-100 |
| 100 | 500 | 300 | 250 | 475 | 425 | 525 | 1,550 | 725 | 400 | 2,425 | 5-125 | 50-1,140 | 540-13,500 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-150 |
| 75 | 500 | 300 | 275 | 475 | 425 | 525 | 1,400 | 650 | 350 | 2,400 | 10-160 | 60-1,450 | 700-17,400 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-150 |
| 50 | 475 | 300 | 275 | 475 | 400 | 500 | 1,250 | 575 | 325 | 2,350 | FALLOUT GOVERNS | | | | | | | |
| 25 | 450 | 275 | 250 | 425 | 350 | 475 | 1,100 | 500 | 275 | 2,325 | | | | | | | | |
| 0 | 325 | 225 | 175 | 375 | 300 | 400 | 925 | 450 | 250 | 2,275 | | | | | | | | |

LFR 1

Figure 5.6a continued.

¹Large Free Rocket.

CASUALTY and DAMAGE Tables

Large Free Rocket

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,200 | | 0 | | | | | | | | | 600 | 600 | 3,850 | 2,975 | 2,700 | 2,375 | 1,375 | 925 | 1,275 | 900 | 100 |
| 1,150 | | 250 | | | | | | | | | 850 | 850 | 3,850 | 3,000 | 2,725 | 2,400 | 1,400 | 1,000 | 1,325 | 950 | 350 |
| 1,100 | | 400 | | | | | 0 | | | 0 | 1,000 | 1,000 | 3,875 | 3,000 | 2,750 | 2,425 | 1,450 | 1,050 | 1,375 | 1,025 | 500 |
| 1,050 | | 525 | | | | | 325 | | | 150 | 1,150 | 1,150 | 3,875 | 3,025 | 2,750 | 2,425 | 1,500 | 1,100 | 1,400 | 1,075 | 600 |
| 1,000 | | 625 | | | | | 450 | | | 350 | 1,300 | 1,300 | 3,900 | 3,050 | 2,775 | 2,450 | 1,525 | 1,150 | 1,500 | 1,125 | 675 |
| 950 | | 700 | | 0 | | | 550 | | | 475 | 1,500 | 1,500 | 3,900 | 3,050 | 2,800 | 2,475 | 1,550 | 1,200 | 1,650 | 1,150 | 750 |
| 900 | 0 | 750 | | 200 | | | 625 | | | 550 | 1,750 | 1,750 | 3,925 | 3,075 | 2,800 | 2,500 | 1,575 | 1,225 | 2,100 | 1,200 | 800 |
| 850 | 275 | 800 | | 350 | 0 | 700 | | | 0 | 625 | 2,125 | 2,125 | 3,925 | 3,075 | 2,825 | 2,500 | 1,600 | 1,250 | 2,175 | 1,250 | 850 |
| 800 | 400 | 850 | | 450 | 300 | 750 | | | 175 | 700 | 2,175 | 2,175 | 3,950 | 3,100 | 2,850 | 2,525 | 1,625 | 1,300 | 2,175 | 1,275 | 900 |
| 775 | 450 | 875 | | 500 | 350 | 775 | | | 475 | 725 | 2,200 | 2,200 | 3,950 | 3,100 | 2,850 | 2,525 | 1,650 | 1,300 | 2,175 | 1,275 | 925 |
| 750 | 500 | 900 | | 550 | 400 | 800 | | 0 | 550 | 750 | 2,200 | 2,200 | 3,950 | 3,100 | 2,850 | 2,550 | 1,650 | 1,325 | 2,175 | 1,325 | 950 |
| 725 | 525 | 925 | 0 | 575 | 450 | 825 | | 175 | 625 | 775 | 2,200 | 2,200 | 3,950 | 3,125 | 2,850 | 2,550 | 1,675 | 1,350 | 2,175 | 1,400 | 950 |
| 700 | 550 | 950 | 100 | 600 | 475 | 850 | | 250 | 675 | 800 | 2,175 | 2,175 | 3,975 | 3,125 | 2,875 | 2,550 | 1,675 | 1,350 | 2,225 | 1,475 | 975 |
| 675 | 600 | 950 | 200 | 625 | 525 | 875 | | 325 | 725 | 825 | 2,175 | 2,175 | 3,975 | 3,125 | 2,875 | 2,550 | 1,700 | 1,350 | 2,200 | 1,500 | 1,000 |
| 650 | 625 | 975 | 275 | 650 | 550 | 875 | | 375 | 1,200 | 1,200 | 2,150 | 2,150 | 3,975 | 3,150 | 2,875 | 2,575 | 1,700 | 1,375 | 2,175 | 1,475 | 1,000 |
| 625 | 650 | 1,000 | 325 | 675 | 575 | 900 | | 400 | 1,225 | 1,225 | 2,125 | 2,125 | 3,975 | 3,150 | 2,875 | 2,575 | 1,700 | 1,400 | 2,150 | 1,475 | 1,025 |
| 600 | 650 | 1,000 | 375 | 700 | 600 | 925 | | 450 | 1,250 | 1,250 | 2,100 | 2,100 | 3,975 | 3,150 | 2,900 | 2,575 | 1,725 | 1,400 | 2,125 | 1,450 | 1,050 |
| 575 | 675 | 1,025 | 400 | 725 | 625 | 950 | | 475 | 1,275 | 1,275 | 2,075 | 2,075 | 3,975 | 3,150 | 2,900 | 2,600 | 1,725 | 1,400 | 2,100 | 1,425 | 1,050 |
| 550 | 700 | 1,025 | 450 | 750 | 650 | 950 | 0 | 500 | 1,275 | 1,275 | 2,050 | 2,050 | 3,975 | 3,150 | 2,900 | 2,600 | 1,725 | 1,425 | 2,075 | 1,425 | 1,075 |
| 525 | 725 | 1,050 | 475 | 750 | 675 | 975 | 150 | 525 | 1,250 | 1,250 | 2,000 | 2,000 | 4,000 | 3,150 | 2,900 | 2,600 | 1,750 | 1,425 | 2,025 | 1,425 | 1,075 |
| 500 | 825 | 1,050 | 500 | 775 | 675 | 975 | 225 | 550 | 1,250 | 1,250 | 1,975 | 1,975 | 4,000 | 3,175 | 2,900 | 2,600 | 1,750 | 1,450 | 2,000 | 1,425 | 1,100 |
| 475 | 850 | 1,075 | 525 | 800 | 700 | 1,000 | 275 | 575 | 1,225 | 1,225 | 1,950 | 1,950 | 4,000 | 3,175 | 2,925 | 2,600 | 1,750 | 1,450 | 1,950 | 1,425 | 1,100 |
| 450 | 850 | 1,075 | 550 | 800 | 725 | 1,000 | 300 | 600 | 1,200 | 1,200 | 1,900 | 1,900 | 4,000 | 3,175 | 2,925 | 2,600 | 1,750 | 1,450 | 1,925 | 1,425 | 1,125 |
| 425 | 850 | 1,100 | 575 | 825 | 725 | 1,025 | 350 | 625 | 1,175 | 1,175 | 1,850 | 1,850 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,450 | 1,875 | 1,450 | 1,125 |
| 400 | 850 | 1,100 | 575 | 825 | 750 | 1,025 | 375 | 625 | 1,175 | 1,175 | 1,825 | 1,825 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,475 | 1,850 | 1,450 | 1,125 |
| 375 | 875 | 1,100 | 600 | 850 | 750 | 1,025 | 400 | 650 | 1,150 | 1,150 | 1,775 | 1,775 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,475 | 1,800 | 1,450 | 1,150 |
| 350 | 875 | 1,125 | 625 | 850 | 775 | 1,050 | 425 | 650 | 1,125 | 1,125 | 1,750 | 1,750 | 4,000 | 3,175 | 2,925 | 2,625 | 1,800 | 1,475 | 1,750 | 1,450 | 1,150 |
| 325 | 875 | 1,125 | 650 | 850 | 775 | 1,050 | 450 | 675 | 1,100 | 1,100 | 1,700 | 1,700 | 4,025 | 3,175 | 2,950 | 2,625 | 1,800 | 1,475 | 1,725 | 1,475 | 1,150 |
| 300 | 875 | 1,125 | 650 | 875 | 800 | 1,050 | 450 | 675 | 1,075 | 1,075 | 1,650 | 1,650 | 4,025 | 3,175 | 2,950 | 2,625 | 1,800 | 1,500 | 1,725 | 1,475 | 1,175 |
| 275 | 875 | 1,150 | 650 | 875 | 800 | 1,075 | 475 | 700 | 1,075 | 1,075 | 1,625 | 1,625 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,725 | 1,475 | 1,175 |
| 250 | 875 | 1,150 | 650 | 900 | 800 | 1,075 | 475 | 700 | 1,050 | 1,050 | 1,600 | 1,600 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,475 | 1,175 |
| 225 | 875 | 1,150 | 675 | 900 | 825 | 1,075 | 500 | 700 | 1,025 | 1,025 | 1,575 | 1,575 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,475 | 1,175 |
| 200 | 875 | 1,150 | 675 | 900 | 825 | 1,075 | 500 | 725 | 1,025 | 1,050 | 1,550 | 1,550 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 175 | 875 | 1,150 | 700 | 900 | 825 | 1,075 | 525 | 725 | 1,000 | 1,050 | 1,500 | 1,500 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 150 | 875 | 1,150 | 700 | 900 | 825 | 1,100 | 525 | 725 | 975 | 1,050 | 1,475 | 1,475 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 125 | 875 | 1,175 | 700 | 900 | 850 | 1,100 | 525 | 725 | 975 | 1,050 | 1,450 | 1,450 | 3,800 | 3,050 | 2,850 | 2,600 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 100 | 900 | 1,175 | 700 | 925 | 850 | 1,100 | 525 | 750 | 950 | 1,050 | 1,425 | 1,425 | 3,575 | 2,825 | 2,600 | 2,525 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 75 | 900 | 1,175 | 700 | 925 | 850 | 1,100 | 550 | 750 | 925 | 1,050 | 1,400 | 1,400 | 3,325 | 2,600 | 2,350 | 2,450 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 50 | 900 | 1,175 | 700 | 925 | 850 | 1,100 | 550 | 750 | 900 | 1,050 | 1,375 | 1,375 | 3,075 | 2,350 | 2,100 | 2,350 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 25 | 900 | 1,175 | 700 | 925 | 850 | 1,100 | 550 | 750 | 900 | 1,050 | 1,350 | 1,350 | 2,850 | 2,125 | 1,850 | 2,275 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 0 | 900 | 1,175 | 700 | 925 | 850 | 1,100 | 550 | 750 | 875 | 1,050 | 1,325 | 1,325 | 2,575 | 1,875 | 1,600 | 2,175 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |

HOB_{fa} = 65 mLow HOB_{min} = 115 mHigh HOB_{min} = 259 mHOB₉₉ = HOB_{fa} + 3.5 PE_h mHOB₉₈ = HOB_{fa} + 3.0 PE_h mHOB₉₀ = HOB_{fa} + 1.9 PE_h m

Figure 5.6b.

CASUALTY and DAMAGE Tables
Large Free Rocket
All figures in meters

ECHO/10 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,200 | | | | | | | 1,775 | | | 3,650 | | | 0-5 | | | | 0-650 | |
| 1,150 | | | | | | | 1,825 | | | 3,675 | | | 0-5 | | | | 0-750 | |
| 1,100 | | | | | | | 1,850 | | | 3,675 | | | 0-10 | | | | 0-800 | |
| 1,050 | | | | | | | 1,875 | 0 | | 3,675 | | | 0-10 | | | | 0-850 | |
| 1,000 | | | | | | | 1,900 | 150 | | 3,675 | | | 0-15 | | | | 0-950 | |
| 950 | | | | | | | 1,925 | 350 | | 3,675 | | 0 | 0-20 | | | 0 | 0-1,000 | |
| 900 | | | | | | | 1,950 | 450 | | 3,650 | | 0-5 | 0-25 | | | 0-50 | 0-1,050 | |
| 850 | | | | | | | 1,975 | 550 | | 3,625 | | 0-5 | 0-35 | | | 0-350 | 0-1,050 | |
| 800 | | | | | | | 2,000 | 625 | | 3,600 | | 0-5 | 5-45 | | | 0-450 | 50-1,100 | |
| 775 | | | | | | | 2,000 | 650 | | 3,600 | | 0-5 | 5-55 | | | 0-500 | 200-1,150 | |
| 750 | | | | | | | 2,025 | 675 | | 3,600 | | 0-10 | 5-70 | | | 0-550 | 300-1,150 | |
| 725 | | | | | | | 2,025 | 700 | | 3,575 | | 0-10 | 5-85 | | | 0-550 | 350-1,150 | |
| 700 | | | | | | | 2,025 | 725 | | 3,575 | | 0-10 | 5-100 | | | 0-600 | 400-1,200 | |
| 675 | | | | | | | 2,050 | 750 | | 3,550 | | 0-15 | 5-125 | | | 0-600 | 450-1,200 | |
| 650 | | | | | | | 2,050 | 775 | | 3,550 | | 0-15 | 10-160 | | | 0-650 | 500-1,200 | |
| 625 | | | | 0 | | | 2,050 | 800 | | 3,525 | 0 | 0-20 | 10-200 | | 0 | 0-700 | 500-1,200 | |
| 600 | | | | 50 | | | 2,075 | 800 | | 3,525 | 0-5 | 0-20 | 10-240 | | 0-50 | 0-700 | 550-1,250 | |
| 575 | | | | 125 | | | 2,075 | 825 | | 3,500 | 0-5 | 0-25 | 15-300 | | 0-200 | 0-700 | 600-1,250 | |
| 550 | | | | 175 | | | 2,075 | 850 | 0 | 3,475 | 0-5 | 0-35 | 15-380 | | 0-250 | 0-750 | 600-1,250 | |
| 525 | | | | 225 | | | 2,075 | 875 | 125 | 3,450 | 0-5 | 0-45 | 20-500 | | 0-300 | 0-750 | 650-1,250 | |
| 500 | 0 | | | 275 | | | 2,100 | 875 | 200 | 3,450 | 0-10 | 5-50 | 25-600 | | 0-350 | 50-800 | 650-1,300 | |
| 475 | 50 | | | 325 | | 0 | 2,100 | 900 | 250 | 3,425 | 0-10 | 5-75 | 40-900 | | 0-400 | 150-800 | 650-1,300 | |
| 450 | 125 | | | 375 | | 575 | 2,100 | 900 | 300 | 3,400 | 0-15 | 5-100 | 50-1,140 | | 0-400 | 250-800 | 700-1,300 | |
| 425 | 175 | | 0 | 400 | | 600 | 2,100 | 925 | 325 | 3,375 | 0-15 | 5-125 | 60-1,500 | | 0-450 | 300-800 | 700-1,300 | |
| 400 | 225 | | 25 | 425 | | 600 | 2,125 | 925 | 375 | 3,350 | 0-20 | 10-170 | 80-1,980 | | 0-450 | 300-850 | 700-1,300 | |
| 375 | 350 | 0 | 75 | 475 | | 600 | 2,125 | 950 | 400 | 3,325 | 0-25 | 10-220 | 120-2,600 | | 0-500 | 350-850 | 750-1,300 | |
| 350 | 475 | 25 | 125 | 475 | | 625 | 2,125 | 950 | 400 | 3,300 | 0-30 | 15-270 | 140-3,200 | | 0-500 | 400-850 | 750-1,350 | |
| 325 | 500 | 75 | 175 | 500 | | 625 | 2,125 | 950 | 425 | 3,275 | 0-40 | 15-330 | 160-3,960 | | 0-500 | 400-850 | 750-1,350 | |
| 300 | 550 | 100 | 200 | 525 | | 625 | 2,125 | 975 | 450 | 3,250 | 5-45 | 20-390 | 200-4,680 | | 50-550 | 400-850 | 750-1,350 | |
| 275 | 575 | 150 | 250 | 550 | | 625 | 2,125 | 975 | 475 | 3,225 | 5-55 | 20-470 | 230-5,650 | | 150-550 | 450-900 | 800-1,350 | 0 |
| 250 | 575 | 175 | 275 | 550 | | 625 | 2,125 | 975 | 475 | 3,200 | 5-65 | 25-550 | 270-6,600 | 0-5 | 200-550 | 450-900 | 800-1,350 | 0-50 |
| 225 | 600 | 225 | 275 | 575 | 0 | 650 | 2,150 | 975 | 500 | 3,175 | 5-75 | 30-650 | 320-7,800 | 0-5 | 200-600 | 450-900 | 800-1,350 | 0-150 |
| 200 | 625 | 275 | 300 | 600 | 450 | 650 | 2,150 | 1,000 | 500 | 3,150 | 5-100 | 40-900 | 440-10,800 | 0-5 | 250-600 | 500-900 | 800-1,350 | 0-150 |
| 175 | 650 | 350 | 325 | 600 | 525 | 650 | 2,150 | 1,000 | 500 | 3,125 | 5-125 | 50-1,100 | 540-13,200 | 0-5 | 250-600 | 500-900 | 800-1,350 | 0-200 |
| 150 | 650 | 375 | 325 | 625 | 550 | 650 | 2,150 | 1,000 | 525 | 3,075 | 10-160 | 60-1,400 | 680-16,800 | 0-5 | 300-600 | 500-900 | 800-1,350 | 0-200 |
| 125 | 650 | 375 | 350 | 625 | 575 | 650 | 2,075 | 975 | 525 | 3,050 | 10-200 | 75-1,850 | 900-22,200 | 0-5 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 100 | 650 | 375 | 350 | 650 | 575 | 650 | 1,900 | 900 | 475 | 3,025 | 10-250 | 90-2,250 | 1,080-27,000 | 0-10 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 75 | 650 | 400 | 375 | 625 | 575 | 650 | 1,750 | 825 | 450 | 2,975 | 15-320 | 120-2,900 | 1,400-34,800 | 0-10 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 50 | 625 | 375 | 350 | 600 | 525 | 625 | 1,575 | 750 | 400 | 2,950 | FALLOUT COVERS | | | | | | | |
| 25 | 550 | 350 | 300 | 575 | 500 | 575 | 1,425 | 675 | 375 | 2,900 | | | | | | | | |
| 0 | 450 | 300 | 250 | 500 | 425 | 500 | 1,250 | 600 | 325 | 2,875 | | | | | | | | |

LFR 1

Figure 5.6b continued.

¹Large Free Rocket.

CASUALTY and DAMAGE Tables
Large Free Rocket
All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | | | | | | | | | | | | | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,200 | | 400 | | | | 250 | | | | 0 | 1,600 | 1,600 | 5,725 | 3,850 | 3,275 | 3,350 | 1,950 | 1,375 | 2,050 | 1,075 | 575 |
| 1,150 | | 525 | | | | 425 | | | | 250 | 1,750 | 1,750 | 5,725 | 3,875 | 3,300 | 3,375 | 1,975 | 1,425 | 2,475 | 1,125 | 675 |
| 1,100 | | 625 | | | | 550 | | | | 425 | 1,950 | 1,950 | 5,750 | 3,875 | 3,325 | 3,400 | 2,000 | 1,450 | 2,700 | 1,150 | 750 |
| 1,050 | | 700 | | 0 | | 625 | | | | 525 | 2,350 | 2,350 | 5,750 | 3,900 | 3,350 | 3,400 | 2,025 | 1,500 | 2,750 | 1,275 | 825 |
| 1,000 | 0 | 775 | | 225 | 0 | 700 | | | 0 | 625 | 2,625 | 2,625 | 5,750 | 3,900 | 3,350 | 3,425 | 2,050 | 1,525 | 2,750 | 1,400 | 875 |
| 950 | 300 | 825 | | 400 | 175 | 775 | | | 475 | 700 | 2,675 | 2,675 | 5,775 | 3,925 | 3,375 | 3,425 | 2,075 | 1,550 | 2,750 | 1,650 | 925 |
| 900 | 425 | 875 | | 500 | 350 | 825 | | | 625 | 750 | 2,700 | 2,700 | 5,775 | 3,925 | 3,375 | 3,450 | 2,100 | 1,600 | 2,750 | 1,800 | 975 |
| 850 | 525 | 925 | | 575 | 450 | 875 | | 0 | 800 | 825 | 2,700 | 2,700 | 5,775 | 3,950 | 3,400 | 3,475 | 2,125 | 1,625 | 2,775 | 1,875 | 1,025 |
| 800 | 600 | 975 | 0 | 650 | 550 | 925 | | 275 | 1,150 | 1,150 | 2,650 | 2,650 | 5,800 | 3,950 | 3,400 | 3,475 | 2,150 | 1,650 | 2,725 | 1,850 | 1,075 |
| 775 | 625 | 1,000 | 200 | 675 | 575 | 950 | | 350 | 1,450 | 1,450 | 2,650 | 2,650 | 5,800 | 3,950 | 3,425 | 3,475 | 2,150 | 1,650 | 2,700 | 1,850 | 1,075 |
| 750 | 650 | 1,025 | 275 | 700 | 600 | 975 | | 400 | 1,525 | 1,525 | 2,625 | 2,625 | 5,800 | 3,950 | 3,425 | 3,475 | 2,150 | 1,675 | 2,675 | 1,825 | 1,100 |
| 725 | 675 | 1,025 | 325 | 725 | 625 | 975 | | 450 | 1,550 | 1,550 | 2,575 | 2,575 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,675 | 2,650 | 1,800 | 1,125 |
| 700 | 700 | 1,050 | 400 | 750 | 675 | 1,000 | | 475 | 1,550 | 1,550 | 2,525 | 2,525 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,700 | 2,600 | 1,800 | 1,125 |
| 675 | 725 | 1,075 | 425 | 775 | 700 | 1,025 | | 525 | 1,525 | 1,525 | 2,475 | 2,475 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,700 | 2,575 | 1,775 | 1,150 |
| 650 | 1,000 | 1,075 | 475 | 800 | 725 | 1,050 | 0 | 550 | 1,525 | 1,525 | 2,450 | 2,450 | 5,825 | 3,975 | 3,450 | 3,500 | 2,200 | 1,700 | 2,550 | 1,750 | 1,150 |
| 625 | 1,100 | 1,100 | 500 | 825 | 725 | 1,050 | 125 | 575 | 1,525 | 1,525 | 2,400 | 2,400 | 5,825 | 3,975 | 3,450 | 3,500 | 2,200 | 1,725 | 2,500 | 1,725 | 1,175 |
| 600 | 1,125 | 1,125 | 525 | 825 | 750 | 1,075 | 200 | 600 | 1,500 | 1,500 | 2,350 | 2,350 | 5,825 | 3,975 | 3,450 | 3,525 | 2,200 | 1,725 | 2,475 | 1,700 | 1,200 |
| 575 | 1,125 | 1,125 | 550 | 850 | 775 | 1,075 | 275 | 625 | 1,500 | 1,500 | 2,325 | 2,325 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,425 | 1,675 | 1,200 |
| 550 | 1,150 | 1,150 | 575 | 875 | 800 | 1,100 | 325 | 650 | 1,475 | 1,475 | 2,275 | 2,275 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,400 | 1,650 | 1,225 |
| 525 | 1,150 | 1,150 | 600 | 875 | 800 | 1,100 | 350 | 675 | 1,450 | 1,450 | 2,250 | 2,250 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,350 | 1,625 | 1,225 |
| 500 | 1,150 | 1,150 | 625 | 900 | 825 | 1,125 | 400 | 700 | 1,425 | 1,425 | 2,200 | 2,200 | 5,825 | 4,000 | 3,475 | 3,525 | 2,225 | 1,750 | 2,300 | 1,600 | 1,225 |
| 475 | 1,150 | 1,175 | 650 | 900 | 850 | 1,125 | 425 | 700 | 1,400 | 1,400 | 2,175 | 2,175 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,275 | 1,575 | 1,250 |
| 450 | 1,150 | 1,175 | 650 | 925 | 850 | 1,150 | 450 | 725 | 1,375 | 1,375 | 2,150 | 2,150 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,225 | 1,550 | 1,250 |
| 425 | 1,150 | 1,175 | 675 | 925 | 875 | 1,150 | 475 | 750 | 1,350 | 1,350 | 2,100 | 2,100 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,175 | 1,550 | 1,275 |
| 400 | 1,150 | 1,200 | 700 | 950 | 875 | 1,150 | 500 | 750 | 1,350 | 1,350 | 2,075 | 2,075 | 5,825 | 4,000 | 3,475 | 3,550 | 2,250 | 1,775 | 2,125 | 1,550 | 1,275 |
| 375 | 1,150 | 1,200 | 700 | 950 | 875 | 1,175 | 525 | 775 | 1,325 | 1,325 | 2,050 | 2,050 | 5,850 | 4,025 | 3,475 | 3,550 | 2,250 | 1,800 | 2,100 | 1,575 | 1,275 |
| 350 | 1,150 | 1,200 | 725 | 975 | 900 | 1,175 | 525 | 775 | 1,300 | 1,300 | 2,025 | 2,025 | 5,850 | 4,025 | 3,475 | 3,550 | 2,250 | 1,800 | 2,050 | 1,575 | 1,275 |
| 325 | 1,150 | 1,225 | 725 | 975 | 900 | 1,175 | 550 | 775 | 1,275 | 1,275 | 1,975 | 1,975 | 5,850 | 4,025 | 3,475 | 3,550 | 2,275 | 1,800 | 2,025 | 1,575 | 1,300 |
| 300 | 1,150 | 1,225 | 750 | 975 | 925 | 1,175 | 550 | 800 | 1,275 | 1,275 | 1,950 | 1,950 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 2,000 | 1,575 | 1,300 |
| 275 | 1,150 | 1,225 | 750 | 1,000 | 925 | 1,200 | 575 | 800 | 1,250 | 1,250 | 1,925 | 1,925 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 1,950 | 1,575 | 1,300 |
| 250 | 1,150 | 1,225 | 750 | 1,000 | 925 | 1,200 | 575 | 825 | 1,225 | 1,225 | 1,900 | 1,900 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 1,925 | 1,600 | 1,300 |
| 225 | 1,150 | 1,250 | 775 | 1,000 | 950 | 1,200 | 600 | 825 | 1,225 | 1,225 | 1,875 | 1,875 | 5,850 | 4,025 | 3,500 | 3,500 | 2,275 | 1,825 | 1,900 | 1,600 | 1,325 |
| 200 | 1,150 | 1,250 | 775 | 1,000 | 950 | 1,200 | 600 | 825 | 1,200 | 1,200 | 1,850 | 1,850 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,825 | 1,875 | 1,600 | 1,325 |
| 175 | 1,125 | 1,250 | 775 | 1,000 | 950 | 1,200 | 625 | 825 | 1,175 | 1,175 | 1,825 | 1,825 | 5,725 | 3,925 | 3,400 | 3,500 | 2,200 | 1,800 | 1,825 | 1,600 | 1,325 |
| 150 | 1,125 | 1,250 | 800 | 1,000 | 950 | 1,225 | 625 | 850 | 1,175 | 1,175 | 1,800 | 1,800 | 5,400 | 3,725 | 3,200 | 3,325 | 2,225 | 1,775 | 1,850 | 1,600 | 1,325 |
| 125 | 1,100 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,150 | 1,175 | 1,775 | 1,775 | 5,100 | 3,525 | 3,000 | 3,150 | 2,175 | 1,750 | 1,850 | 1,600 | 1,325 |
| 100 | 1,075 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,150 | 1,175 | 1,750 | 1,750 | 4,750 | 3,300 | 2,800 | 2,975 | 2,150 | 1,725 | 1,850 | 1,600 | 1,325 |
| 75 | 1,050 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,125 | 1,175 | 1,725 | 1,725 | 4,500 | 3,100 | 2,625 | 2,750 | 2,100 | 1,700 | 1,875 | 1,600 | 1,325 |
| 50 | 1,025 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,125 | 1,175 | 1,700 | 1,700 | 4,100 | 2,875 | 2,425 | 2,600 | 2,050 | 1,675 | 1,875 | 1,600 | 1,325 |
| 25 | 1,000 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,100 | 1,175 | 1,675 | 1,675 | 3,750 | 2,675 | 2,250 | 2,425 | 2,025 | 1,650 | 1,875 | 1,600 | 1,325 |
| 0 | 1,000 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,100 | 1,175 | 1,675 | 1,675 | 3,375 | 2,475 | 2,050 | 2,275 | 1,975 | 1,625 | 1,875 | 1,600 | 1,325 |

HOB_{fb} = 82 m
 Low HOB_{min} = 144 m
 High HOB_{min} = 326 m
 HOB₉₉ = HOB_{fb} + 3.5 PE_h m
 HOB₉₈ = HOB_{fb} + 3.0 PE_h m
 HOB₉₀ = HOB_{fb} + 1.9 PE_h m

Figure 5.6c.

CASUALTY and DAMAGE Tables
Large Free Rocket
All figures in meters

FOXTROT/20 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|------------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
Hwy and
RR
brgs | Severe
dam
float
brgs | 2d -degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,200 | | | | | | | 2,625 | 650 | | 4,625 | | | 0-10 | | | | 0-750 | |
| 1,150 | | | | | | | 2,650 | 750 | | 4,600 | | | 0-10 | | | | 0-800 | |
| 1,100 | | | | | | | 2,675 | 825 | | 4,600 | | | 0-15 | | | | 0-900 | |
| 1,050 | | | | | | | 2,700 | 875 | | 4,575 | | 0 | 0-20 | | | 0 | 0-950 | |
| 1,000 | | | | | | | 2,700 | 925 | | 4,550 | | 0-5 | 0-25 | | | 0-50 | 0-1,000 | |
| 950 | | | | | | | 2,725 | 975 | | 4,525 | | 0-5 | 0-35 | | | 0-300 | 0-1,050 | |
| 900 | | | | | | | 2,750 | 1,025 | | 4,500 | | 0-5 | 5-45 | | | 0-450 | 50-1,100 | |
| 850 | | | | | | | 2,750 | 1,075 | | 4,475 | | 0-10 | 5-65 | | | 0-550 | 350-1,150 | |
| 800 | | | | 0 | | | 2,775 | 1,100 | | 4,450 | | 0-10 | 5-90 | | | 0-600 | 450-1,150 | |
| 775 | | | | 25 | | | 2,775 | 1,125 | | 4,450 | 0 | 0-10 | 5-110 | | 0 | 0-650 | 500-1,200 | |
| 750 | | | | 75 | | | 2,800 | 1,150 | 0 | 4,425 | 0-5 | 0-15 | 10-140 | | 0-50 | 0-700 | 550-1,200 | |
| 725 | | | | 150 | | | 2,800 | 1,150 | 75 | 4,400 | 0-5 | 0-15 | 10-170 | | 0-200 | 0-700 | 550-1,200 | |
| 700 | | | | 225 | | | 2,800 | 1,175 | 200 | 4,400 | 0-5 | 0-20 | 10-200 | | 0-300 | 0-750 | 600-1,250 | |
| 675 | | | | 275 | | | 2,800 | 1,200 | 275 | 4,375 | 0-5 | 0-25 | 10-250 | | 0-350 | 0-750 | 600-1,250 | |
| 650 | | | | 325 | | | 2,825 | 1,200 | 325 | 4,350 | 0-5 | 0-30 | 15-320 | | 0-400 | 0-800 | 650-1,250 | |
| 625 | 0 | | | 375 | | 0 | 2,825 | 1,225 | 375 | 4,325 | 0-5 | 0-35 | 20-390 | | 0-450 | 0-800 | 700-1,300 | |
| 600 | 75 | | | 425 | | 750 | 2,825 | 1,225 | 425 | 4,325 | 0-5 | 5-40 | 20-480 | | 0-450 | 50-800 | 700-1,300 | |
| 575 | 125 | | | 475 | | 775 | 2,825 | 1,250 | 450 | 4,300 | 0-10 | 5-50 | 25-590 | | 0-500 | 200-850 | 700-1,300 | |
| 550 | 200 | | | 525 | | 775 | 2,825 | 1,250 | 475 | 4,275 | 0-10 | 5-65 | 30-750 | | 0-550 | 250-850 | 750-1,300 | |
| 525 | 250 | | 0 | 550 | | 775 | 2,850 | 1,275 | 500 | 4,250 | 0-10 | 5-85 | 40-990 | | 0-600 | 300-900 | 750-1,350 | |
| 500 | 325 | | 25 | 575 | | 775 | 2,850 | 1,275 | 525 | 4,225 | 0-15 | 5-100 | 50-1,200 | | 0-600 | 350-900 | 800-1,350 | |
| 475 | 425 | 0 | 100 | 600 | | 775 | 2,850 | 1,275 | 550 | 4,200 | 0-20 | 10-150 | 75-1,800 | | 0-600 | 400-900 | 800-1,350 | |
| 450 | 600 | 25 | 150 | 625 | 0 | 800 | 2,850 | 1,300 | 575 | 4,175 | 0-25 | 10-190 | 100-2,280 | | 0-600 | 400-900 | 800-1,350 | |
| 425 | 675 | 75 | 200 | 650 | 550 | 800 | 2,850 | 1,300 | 600 | 4,150 | 0-30 | 10-250 | 120-3,000 | | 0-650 | 450-950 | 800-1,350 | |
| 400 | 700 | 100 | 250 | 675 | 650 | 800 | 2,850 | 1,300 | 600 | 4,125 | 0-40 | 15-330 | 160-3,960 | | 0-650 | 450-950 | 850-1,350 | |
| 375 | 725 | 150 | 275 | 700 | 675 | 800 | 2,875 | 1,325 | 625 | 4,100 | 0-50 | 20-430 | 210-5,160 | | 0-650 | 500-950 | 850-1,400 | |
| 350 | 750 | 200 | 325 | 725 | 675 | 825 | 2,875 | 1,325 | 650 | 4,075 | 5-60 | 25-530 | 260-6,360 | | 50-700 | 500-950 | 850-1,400 | |
| 325 | 775 | 225 | 350 | 725 | 700 | 825 | 2,875 | 1,325 | 650 | 4,050 | 5-75 | 30-660 | 320-7,920 | 0 | 150-700 | 500-950 | 850-1,400 | 0 |
| 300 | 800 | 275 | 350 | 750 | 700 | 825 | 2,875 | 1,325 | 675 | 4,025 | 5-90 | 35-780 | 380-9,360 | 0-5 | 200-700 | 550-1,000 | 850-1,400 | 0-50 |
| 275 | 800 | 325 | 375 | 775 | 700 | 825 | 2,875 | 1,350 | 675 | 4,000 | 5-105 | 40-940 | 460-11,300 | 0-5 | 250-700 | 550-1,000 | 900-1,400 | 0-150 |
| 250 | 825 | 375 | 400 | 775 | 700 | 850 | 2,875 | 1,350 | 675 | 3,950 | 5-125 | 45-1,100 | 530-13,200 | 0-5 | 250-750 | 550-1,000 | 900-1,400 | 0-200 |
| 225 | 850 | 425 | 425 | 800 | 725 | 850 | 2,875 | 1,350 | 700 | 3,925 | 10-150 | 60-1,300 | 630-15,600 | 0-5 | 300-750 | 600-1,000 | 900-1,400 | 0-200 |
| 200 | 850 | 475 | 450 | 825 | 725 | 850 | 2,875 | 1,350 | 700 | 3,900 | 10-200 | 75-1,800 | 870-21,600 | 0-5 | 300-750 | 600-1,000 | 900-1,400 | 0-250 |
| 175 | 875 | 500 | 450 | 825 | 725 | 850 | 2,850 | 1,350 | 725 | 3,875 | 10-250 | 90-2,200 | 1,060-26,400 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-250 |
| 150 | 875 | 500 | 475 | 850 | 725 | 850 | 2,675 | 1,275 | 675 | 3,825 | 15-310 | 120-2,800 | 1,350-33,600 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 125 | 850 | 500 | 475 | 850 | 725 | 850 | 2,500 | 1,200 | 650 | 3,800 | 20-410 | 150-3,700 | 1,780-44,000 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 100 | 850 | 525 | 475 | 850 | 700 | 825 | 2,350 | 1,125 | 600 | 3,775 | 20-500 | 180-4,500 | 2,160-54,000 | 0-15 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 75 | 825 | 500 | 475 | 825 | 675 | 800 | 2,175 | 1,050 | 550 | 3,725 | FALLOUT GOVERNS | | | | | | | |
| 50 | 775 | 500 | 450 | 775 | 750 | 750 | 2,000 | 975 | 525 | 3,700 | | | | | | | | |
| 25 | 700 | 450 | 375 | 725 | 600 | 725 | 1,850 | 900 | 475 | 3,650 | | | | | | | | |
| 0 | 600 | 400 | 325 | 650 | 550 | 650 | 1,675 | 825 | 450 | 3,625 | | | | | | | | |

LFR i

Figure 5.6c continued.

¹Large Free Rocket.

CASUALTY and DAMAGE Tables
Large Free Rocket
All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,350 | | 600 | | | | 400 | | | 0 | 125 | 3,750 | 3,750 | 8,575 | 6,450 | 5,600 | 5,225 | 3,100 | 2,350 | 3,750 | 2,000 | 675 |
| 1,300 | | 700 | | | | 550 | | | 900 | 900 | 3,750 | 3,750 | 8,575 | 6,450 | 5,600 | 5,225 | 3,125 | 2,375 | 3,750 | 2,175 | 750 |
| 1,250 | | 800 | | | | 650 | | | 1,125 | 1,125 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,250 | 3,150 | 2,400 | 3,750 | 2,375 | 825 |
| 1,200 | 0 | 875 | | 0 | | 750 | | | 1,300 | 1,300 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,250 | 3,175 | 2,425 | 3,750 | 2,500 | 925 |
| 1,150 | 250 | 925 | | 250 | 0 | 800 | | | 1,425 | 1,425 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,275 | 3,175 | 2,450 | 3,750 | 2,550 | 975 |
| 1,100 | 425 | 975 | 0 | 425 | 250 | 875 | | | 2,125 | 2,125 | 3,700 | 3,700 | 8,600 | 6,500 | 5,650 | 5,275 | 3,200 | 2,475 | 3,700 | 2,525 | 1,025 |
| 1,050 | 550 | 1,025 | 150 | 550 | 400 | 950 | | | 2,150 | 2,150 | 3,700 | 3,700 | 8,625 | 6,500 | 5,650 | 5,300 | 3,225 | 2,500 | 3,650 | 2,500 | 1,125 |
| 1,000 | 625 | 1,075 | 350 | 625 | 525 | 1,000 | | 0 | 2,175 | 2,175 | 3,650 | 3,650 | 8,625 | 6,500 | 5,675 | 5,300 | 3,225 | 2,500 | 3,600 | 2,475 | 1,225 |
| 950 | 700 | 1,125 | 475 | 700 | 600 | 1,050 | | 300 | 2,175 | 2,175 | 3,600 | 3,600 | 8,625 | 6,500 | 5,675 | 5,300 | 3,250 | 2,525 | 3,550 | 2,425 | 1,375 |
| 900 | 1,350 | 1,350 | 550 | 775 | 675 | 1,075 | | 425 | 2,150 | 2,150 | 3,500 | 3,500 | 8,625 | 6,525 | 5,675 | 5,325 | 3,250 | 2,550 | 3,475 | 2,400 | 1,450 |
| 850 | 1,575 | 1,575 | 650 | 825 | 750 | 1,125 | | 525 | 2,125 | 2,125 | 3,400 | 3,400 | 8,650 | 6,525 | 5,675 | 5,325 | 3,275 | 2,550 | 3,400 | 2,350 | 1,475 |
| 800 | 1,625 | 1,625 | 700 | 875 | 800 | 1,150 | | 600 | 2,100 | 2,100 | 3,300 | 3,300 | 8,650 | 6,525 | 5,700 | 5,325 | 3,300 | 2,575 | 3,325 | 2,300 | 1,450 |
| 775 | 1,625 | 1,625 | 725 | 900 | 825 | 1,175 | 0 | 625 | 2,100 | 2,100 | 3,250 | 3,250 | 8,650 | 6,525 | 5,700 | 5,325 | 3,300 | 2,575 | 3,300 | 2,275 | 1,450 |
| 750 | 1,625 | 1,625 | 750 | 925 | 850 | 1,200 | 125 | 650 | 2,075 | 2,075 | 3,250 | 3,250 | 8,650 | 6,525 | 5,700 | 5,350 | 3,300 | 2,600 | 3,250 | 2,250 | 1,425 |
| 725 | 1,650 | 1,650 | 775 | 925 | 850 | 1,200 | 225 | 675 | 2,050 | 2,050 | 3,200 | 3,200 | 8,650 | 6,525 | 5,700 | 5,350 | 3,300 | 2,600 | 3,225 | 2,225 | 1,425 |
| 700 | 1,650 | 1,650 | 800 | 950 | 875 | 1,225 | 300 | 700 | 2,050 | 2,050 | 3,150 | 3,150 | 8,650 | 6,525 | 5,700 | 5,350 | 3,325 | 2,600 | 3,175 | 2,175 | 1,400 |
| 675 | 1,650 | 1,650 | 825 | 975 | 900 | 1,250 | 350 | 725 | 2,025 | 2,025 | 3,100 | 3,100 | 8,650 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,125 | 2,150 | 1,375 |
| 650 | 1,650 | 1,650 | 850 | 1,000 | 925 | 1,250 | 400 | 750 | 2,000 | 2,000 | 3,050 | 3,050 | 8,650 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,075 | 2,125 | 1,350 |
| 625 | 1,650 | 1,650 | 850 | 1,000 | 925 | 1,250 | 425 | 775 | 1,975 | 1,975 | 3,000 | 3,000 | 8,675 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,050 | 2,100 | 1,375 |
| 600 | 1,650 | 1,650 | 875 | 1,025 | 950 | 1,275 | 475 | 800 | 1,950 | 1,950 | 3,000 | 3,000 | 8,675 | 6,550 | 5,725 | 5,375 | 3,325 | 2,625 | 3,000 | 2,100 | 1,375 |
| 575 | 1,650 | 1,650 | 900 | 1,025 | 975 | 1,275 | 500 | 825 | 1,925 | 1,925 | 2,950 | 2,950 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,950 | 2,075 | 1,400 |
| 550 | 1,650 | 1,650 | 900 | 1,050 | 975 | 1,300 | 525 | 825 | 1,900 | 1,900 | 2,900 | 2,900 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,900 | 2,050 | 1,400 |
| 525 | 1,650 | 1,650 | 925 | 1,050 | 1,000 | 1,300 | 550 | 850 | 1,875 | 1,875 | 2,900 | 2,900 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,850 | 2,025 | 1,425 |
| 500 | 1,650 | 1,650 | 950 | 1,075 | 1,000 | 1,325 | 575 | 850 | 1,850 | 1,850 | 2,850 | 2,850 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,825 | 2,025 | 1,425 |
| 475 | 1,650 | 1,650 | 950 | 1,075 | 1,025 | 1,325 | 600 | 875 | 1,825 | 1,825 | 2,800 | 2,800 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,775 | 2,000 | 1,425 |
| 450 | 1,650 | 1,650 | 975 | 1,100 | 1,025 | 1,325 | 625 | 875 | 1,800 | 1,800 | 2,800 | 2,800 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,750 | 1,975 | 1,425 |
| 425 | 1,650 | 1,650 | 975 | 1,100 | 1,050 | 1,350 | 625 | 900 | 1,775 | 1,775 | 2,750 | 2,750 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,675 | 2,725 | 1,950 | 1,450 |
| 400 | 1,650 | 1,650 | 975 | 1,125 | 1,050 | 1,350 | 650 | 900 | 1,750 | 1,750 | 2,700 | 2,700 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,675 | 2,700 | 1,950 | 1,450 |
| 375 | 1,650 | 1,650 | 1,000 | 1,125 | 1,050 | 1,350 | 650 | 925 | 1,725 | 1,725 | 2,700 | 2,700 | 8,675 | 6,575 | 5,800 | 5,375 | 3,350 | 2,675 | 2,650 | 1,925 | 1,450 |
| 350 | 1,650 | 1,650 | 1,000 | 1,125 | 1,075 | 1,375 | 675 | 925 | 1,700 | 1,700 | 2,650 | 2,650 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,625 | 1,900 | 1,475 |
| 325 | 1,650 | 1,650 | 1,025 | 1,150 | 1,075 | 1,375 | 675 | 950 | 1,675 | 1,675 | 2,600 | 2,600 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,600 | 1,900 | 1,475 |
| 300 | 1,650 | 1,650 | 1,025 | 1,150 | 1,075 | 1,375 | 700 | 950 | 1,675 | 1,675 | 2,600 | 2,600 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,575 | 1,875 | 1,475 |
| 275 | 1,650 | 1,650 | 1,025 | 1,150 | 1,100 | 1,375 | 700 | 950 | 1,650 | 1,650 | 2,550 | 2,550 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,550 | 1,875 | 1,475 |
| 250 | 1,650 | 1,650 | 1,025 | 1,150 | 1,100 | 1,400 | 725 | 975 | 1,625 | 1,625 | 2,550 | 2,550 | 8,600 | 6,500 | 5,675 | 5,350 | 3,300 | 2,650 | 2,525 | 1,850 | 1,475 |
| 225 | 1,625 | 1,625 | 1,050 | 1,175 | 1,100 | 1,400 | 725 | 975 | 1,625 | 1,625 | 2,500 | 2,500 | 8,000 | 6,225 | 5,425 | 5,100 | 3,200 | 2,575 | 2,500 | 1,850 | 1,500 |
| 200 | 1,625 | 1,625 | 1,050 | 1,175 | 1,100 | 1,400 | 725 | 975 | 1,600 | 1,600 | 2,500 | 2,500 | 7,750 | 5,950 | 5,175 | 4,875 | 3,100 | 2,500 | 2,475 | 1,825 | 1,500 |
| 175 | 1,600 | 1,600 | 1,050 | 1,175 | 1,100 | 1,400 | 750 | 975 | 1,600 | 1,600 | 2,450 | 2,450 | 7,500 | 5,675 | 4,925 | 4,650 | 2,975 | 2,400 | 2,450 | 1,825 | 1,500 |
| 150 | 1,575 | 1,575 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 975 | 1,575 | 1,575 | 2,450 | 2,450 | 7,100 | 5,400 | 4,700 | 4,425 | 2,875 | 2,325 | 2,425 | 1,800 | 1,500 |
| 125 | 1,550 | 1,550 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 975 | 1,550 | 1,550 | 2,400 | 2,400 | 6,750 | 5,100 | 4,450 | 4,200 | 2,775 | 2,250 | 2,400 | 1,800 | 1,500 |
| 100 | 1,525 | 1,525 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,550 | 1,550 | 2,400 | 2,400 | 6,400 | 4,825 | 4,200 | 3,975 | 2,675 | 2,175 | 2,375 | 1,800 | 1,500 |
| 75 | 1,475 | 1,475 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,525 | 1,525 | 2,350 | 2,350 | 6,050 | 4,550 | 3,950 | 3,725 | 2,550 | 2,100 | 2,350 | 1,800 | 1,500 |
| 50 | 1,425 | 1,425 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,525 | 1,525 | 2,300 | 2,300 | 5,600 | 4,275 | 3,700 | 3,500 | 2,450 | 2,025 | 2,350 | 1,800 | 1,500 |
| 25 | 1,350 | 1,350 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,500 | 1,500 | 2,300 | 2,300 | 5,300 | 4,025 | 3,475 | 3,300 | 2,350 | 1,950 | 2,325 | 1,800 | 1,500 |
| 0 | 1,300 | 1,300 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,500 | 1,500 | 2,300 | 2,300 | 4,850 | 3,750 | 3,250 | 3,100 | 2,250 | 1,875 | 2,300 | 1,800 | 1,500 |

HOB_{fs} = 111 mLow HOB_{min} = 196 mHigh HOB_{min} = 442 mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 5.6d.

CASUALTY and DAMAGE Tables
Large Free Rocket
All figures in meters

GOLF/50 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|---------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,350 | | | | | | | 3,700 | 1,550 | | 6,175 | | | 0-10 | | | | 0-800 | |
| 1,300 | | | | | | | 3,700 | 1,600 | | 6,150 | | | 0-10 | | | | 0-850 | |
| 1,250 | | | | | | | 3,725 | 1,625 | | 6,125 | | | 0-15 | | | | 0-950 | |
| 1,200 | | | | | | | 3,750 | 1,675 | 0 | 6,100 | | 0 | 0-15 | | | 0 | 0-1,000 | |
| 1,150 | | | | | | | 3,750 | 1,700 | 300 | 6,075 | | 0-5 | 0-25 | | | 0-50 | 0-1,050 | |
| 1,100 | | | | 0 | | | 3,775 | 1,750 | 450 | 6,050 | | 0-5 | 0-30 | | | 0-350 | 0-1,100 | |
| 1,050 | | | | 25 | | | 3,775 | 1,775 | 550 | 6,025 | | 0-5 | 5-40 | | | 0-500 | 50-1,150 | |
| 1,000 | | | | 175 | | | 3,800 | 1,800 | 650 | 6,000 | | 0-5 | 5-60 | | | 0-600 | 350-1,200 | |
| 950 | | | | 300 | | | 3,825 | 1,825 | 725 | 5,950 | | 0-10 | 5-80 | | | 0-650 | 500-1,250 | |
| 900 | | | | 425 | | 0 | 3,825 | 1,850 | 775 | 5,925 | | 0-10 | 5-110 | | | 0-750 | 550-1,300 | |
| 850 | 0 | | | 550 | | 1,175 | 3,825 | 1,875 | 825 | 5,875 | 0 | 0-15 | 10-160 | | 0 | 0-800 | 650-1,300 | |
| 800 | 150 | | | 650 | | 1,225 | 3,850 | 1,900 | 875 | 5,850 | 0-5 | 0-20 | 10-230 | | 0-50 | 0-850 | 700-1,350 | |
| 775 | 225 | | | 700 | | 1,225 | 3,850 | 1,900 | 900 | 5,825 | 0-5 | 0-25 | 15-270 | | 0-200 | 0-850 | 750-1,350 | |
| 750 | 275 | | | 725 | 0 | 1,225 | 3,850 | 1,925 | 925 | 5,800 | 0-5 | 0-30 | 15-330 | | 0-300 | 0-900 | 750-1,400 | |
| 725 | 350 | | | 775 | 800 | 1,225 | 3,875 | 1,925 | 950 | 5,775 | 0-5 | 0-35 | 20-410 | | 0-350 | 0-900 | 800-1,400 | |
| 700 | 400 | | 0 | 800 | 875 | 1,225 | 3,875 | 1,925 | 950 | 5,750 | 0-5 | 5-45 | 20-500 | | 0-400 | 50-950 | 800-1,400 | |
| 675 | 475 | | 50 | 850 | 900 | 1,225 | 3,875 | 1,950 | 975 | 5,725 | 0-10 | 5-55 | 25-620 | | 0-450 | 200-950 | 850-1,400 | |
| 650 | 600 | 0 | 125 | 875 | 900 | 1,225 | 3,875 | 1,950 | 975 | 5,700 | 0-10 | 5-65 | 35-780 | | 0-500 | 300-950 | 850-1,450 | |
| 625 | 825 | 25 | 175 | 900 | 925 | 1,250 | 3,875 | 1,975 | 1,025 | 5,675 | 0-10 | 5-80 | 40-960 | | 0-500 | 350-1,000 | 850-1,450 | |
| 600 | 900 | 50 | 250 | 925 | 925 | 1,250 | 3,875 | 1,975 | 1,025 | 5,650 | 0-15 | 5-100 | 50-1,200 | | 0-550 | 400-1,000 | 900-1,450 | |
| 575 | 950 | 100 | 300 | 950 | 925 | 1,250 | 3,900 | 1,975 | 1,050 | 5,625 | 0-15 | 5-125 | 60-1,470 | | 0-600 | 400-1,000 | 900-1,450 | |
| 550 | 975 | 150 | 350 | 975 | 950 | 1,250 | 3,900 | 1,975 | 1,050 | 5,600 | 0-20 | 10-155 | 75-1,860 | | 0-600 | 450-1,050 | 900-1,450 | |
| 525 | 1,000 | 200 | 375 | 1,000 | 950 | 1,250 | 3,900 | 2,000 | 1,075 | 5,575 | 0-25 | 10-205 | 100-2,460 | | 0-600 | 450-1,050 | 950-1,500 | |
| 500 | 1,025 | 225 | 425 | 1,000 | 950 | 1,250 | 3,900 | 2,000 | 1,075 | 5,550 | 5-30 | 10-250 | 120-3,000 | | 50-650 | 500-1,050 | 950-1,500 | |
| 475 | 1,075 | 275 | 450 | 1,025 | 950 | 1,250 | 3,900 | 2,000 | 1,100 | 5,525 | 5-45 | 15-375 | 180-4,500 | 0 | 150-650 | 550-1,050 | 950-1,500 | 0 |
| 450 | 1,100 | 325 | 475 | 1,050 | 950 | 1,250 | 3,900 | 2,000 | 1,100 | 5,500 | 5-55 | 20-475 | 230-5,700 | 0-5 | 250-700 | 550-1,100 | 1,000-1,500 | 0-50 |
| 425 | 1,100 | 350 | 500 | 1,075 | 975 | 1,250 | 3,900 | 2,025 | 1,100 | 5,475 | 5-70 | 25-625 | 300-7,500 | 0-5 | 300-700 | 600-1,100 | 1,000-1,500 | 0-150 |
| 400 | 1,125 | 400 | 525 | 1,100 | 975 | 1,250 | 3,900 | 2,025 | 1,125 | 5,450 | 5-90 | 35-825 | 400-9,900 | 0-5 | 300-700 | 600-1,100 | 1,000-1,500 | 0-200 |
| 375 | 1,150 | 450 | 550 | 1,100 | 1,000 | 1,250 | 3,900 | 2,025 | 1,125 | 5,425 | 5-120 | 45-1,080 | 520-12,900 | 0-5 | 350-750 | 600-1,100 | 1,000-1,550 | 0-250 |
| 350 | 1,175 | 500 | 575 | 1,125 | 1,000 | 1,250 | 3,925 | 2,025 | 1,125 | 5,400 | 10-150 | 55-1,330 | 640-15,900 | 0-5 | 400-750 | 650-1,100 | 1,000-1,550 | 0-300 |
| 325 | 1,200 | 575 | 600 | 1,150 | 1,000 | 1,250 | 3,925 | 2,025 | 1,150 | 5,350 | 10-190 | 70-1,650 | 800-19,800 | 0-5 | 400-750 | 650-1,150 | 1,000-1,550 | 0-350 |
| 300 | 1,225 | 650 | 600 | 1,175 | 1,025 | 1,250 | 3,925 | 2,050 | 1,150 | 5,325 | 10-215 | 80-1,950 | 940-23,400 | 0-5 | 400-750 | 650-1,150 | 1,050-1,550 | 0-350 |
| 275 | 1,225 | 675 | 625 | 1,175 | 1,025 | 1,250 | 3,925 | 2,050 | 1,150 | 5,300 | 15-260 | 100-2,350 | 1,130-28,200 | 0-10 | 450-800 | 650-1,150 | 1,050-1,550 | 0-400 |
| 250 | 1,250 | 700 | 650 | 1,200 | 1,025 | 1,250 | 3,850 | 2,025 | 1,150 | 5,275 | 15-310 | 110-2,750 | 1,320-33,000 | 0-10 | 450-800 | 700-1,150 | 1,050-1,550 | 0-400 |
| 225 | 1,250 | 725 | 650 | 1,200 | 1,050 | 1,250 | 3,700 | 1,950 | 1,125 | 5,225 | 15-360 | 130-3,250 | 1,560-39,000 | 0-10 | 450-800 | 700-1,150 | 1,050-1,550 | 0-400 |
| 200 | 1,250 | 725 | 675 | 1,225 | 1,050 | 1,250 | 3,550 | 1,850 | 1,075 | 5,200 | 20-500 | 180-4,500 | 2,160-54,000 | 0-15 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 175 | 1,250 | 750 | 675 | 1,225 | 1,075 | 1,250 | 3,400 | 1,775 | 1,025 | 5,175 | 25-610 | 220-5,500 | 2,640-66,000 | 0-15 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 150 | 1,225 | 750 | 700 | 1,225 | 1,075 | 1,225 | 3,275 | 1,700 | 975 | 5,125 | 35-770 | 280-7,000 | 3,360-84,000 | 0-20 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 125 | 1,225 | 750 | 700 | 1,200 | 1,050 | 1,225 | 3,125 | 1,600 | 950 | 5,100 | 45-1,020 | 370-9,250 | 4,440-111,000 | 5-25 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 100 | 1,200 | 725 | 675 | 1,175 | 1,025 | 1,200 | 2,975 | 1,525 | 900 | 5,050 | FALLOUT GOVERNS | | | | | | | |
| 75 | 1,150 | 725 | 650 | 1,150 | 975 | 1,150 | 2,825 | 1,450 | 850 | 5,025 | | | | | | | | |
| 50 | 1,075 | 675 | 600 | 1,100 | 925 | 1,125 | 2,675 | 1,375 | 800 | 5,000 | | | | | | | | |
| 25 | 975 | 650 | 525 | 1,025 | 875 | 1,075 | 2,525 | 1,275 | 750 | 4,950 | | | | | | | | |
| 0 | 825 | 550 | 450 | 950 | 800 | 975 | 2,375 | 1,200 | 725 | 4,925 | | | | | | | | |

LFR 1

Figure 5.6d continued.

CASUALTY and DAMAGE Tables
Large Free Rocket
All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in l-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,350 | | 975 | 0 | 0 | | 800 | | | 2,650 | 2,650 | 4,600 | 4,600 | 11,325 | 8,900 | 7,575 | 7,100 | 4,475 | 3,400 | 4,625 | 3,150 | 1,350 |
| 1,300 | | 1,025 | 125 | 125 | 0 | 875 | | | 2,700 | 2,700 | 4,550 | 4,550 | 11,325 | 8,900 | 7,600 | 7,100 | 4,475 | 3,425 | 4,575 | 3,125 | 1,475 |
| 1,250 | | 1,100 | 250 | 375 | 200 | 950 | | | 2,700 | 2,700 | 4,500 | 4,500 | 11,350 | 8,900 | 7,600 | 7,125 | 4,500 | 3,425 | 4,525 | 3,100 | 1,600 |
| 1,200 | | 1,150 | 375 | 500 | 400 | 1,000 | | | 2,700 | 2,700 | 4,450 | 4,450 | 11,350 | 8,925 | 7,600 | 7,125 | 4,500 | 3,450 | 4,475 | 3,075 | 1,725 |
| 1,150 | 0 | 1,200 | 475 | 625 | 525 | 1,075 | | 0 | 2,675 | 2,675 | 4,400 | 4,400 | 11,350 | 8,925 | 7,625 | 7,125 | 4,525 | 3,475 | 4,400 | 3,025 | 1,825 |
| 1,100 | 1,950 | 1,950 | 550 | 700 | 625 | 1,125 | | 175 | 2,650 | 2,650 | 4,300 | 4,300 | 11,350 | 8,925 | 7,625 | 7,125 | 4,525 | 3,475 | 4,325 | 2,975 | 1,875 |
| 1,050 | 2,100 | 2,100 | 625 | 775 | 700 | 1,175 | | 375 | 2,600 | 2,600 | 4,250 | 4,250 | 11,350 | 8,950 | 7,625 | 7,150 | 4,550 | 3,500 | 4,250 | 2,925 | 1,850 |
| 1,000 | 2,150 | 2,150 | 675 | 825 | 775 | 1,200 | | 500 | 2,600 | 2,600 | 4,150 | 4,150 | 11,350 | 8,950 | 7,625 | 7,150 | 4,550 | 3,525 | 4,175 | 2,875 | 1,825 |
| 950 | 2,175 | 2,175 | 725 | 900 | 825 | 1,250 | | 575 | 2,575 | 2,575 | 4,050 | 4,050 | 11,350 | 8,950 | 7,650 | 7,150 | 4,575 | 3,525 | 4,100 | 2,825 | 1,800 |
| 900 | 2,175 | 2,175 | 775 | 950 | 900 | 1,275 | 0 | 650 | 2,525 | 2,525 | 4,000 | 4,000 | 11,375 | 8,950 | 7,650 | 7,175 | 4,575 | 3,550 | 4,025 | 2,775 | 1,775 |
| 850 | 2,175 | 2,175 | 800 | 1,000 | 950 | 1,325 | 175 | 725 | 2,475 | 2,475 | 3,900 | 3,900 | 11,375 | 8,950 | 7,650 | 7,175 | 4,575 | 3,550 | 3,950 | 2,725 | 1,725 |
| 800 | 2,175 | 2,175 | 825 | 1,025 | 975 | 1,350 | 350 | 775 | 2,450 | 2,450 | 3,800 | 3,800 | 11,375 | 8,950 | 7,650 | 7,175 | 4,600 | 3,575 | 3,850 | 2,675 | 1,675 |
| 775 | 2,175 | 2,175 | 825 | 1,050 | 1,000 | 1,350 | 400 | 800 | 2,425 | 2,425 | 3,800 | 3,800 | 11,375 | 8,975 | 7,650 | 7,175 | 4,600 | 3,575 | 3,800 | 2,650 | 1,650 |
| 750 | 2,175 | 2,175 | 825 | 1,075 | 1,025 | 1,375 | 450 | 825 | 2,400 | 2,400 | 3,750 | 3,750 | 11,375 | 8,975 | 7,675 | 7,175 | 4,600 | 3,575 | 3,775 | 2,625 | 1,625 |
| 725 | 2,175 | 2,175 | 850 | 1,075 | 1,050 | 1,400 | 475 | 850 | 2,375 | 2,375 | 3,700 | 3,700 | 11,375 | 8,975 | 7,675 | 7,175 | 4,600 | 3,575 | 3,725 | 2,600 | 1,600 |
| 700 | 2,175 | 2,175 | 850 | 1,100 | 1,050 | 1,400 | 525 | 875 | 2,350 | 2,350 | 3,650 | 3,650 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,675 | 2,600 | 1,575 |
| 675 | 2,175 | 2,175 | 850 | 1,100 | 1,075 | 1,425 | 550 | 875 | 2,325 | 2,325 | 3,650 | 3,650 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,625 | 2,575 | 1,500 |
| 650 | 2,175 | 2,175 | 850 | 1,125 | 1,075 | 1,425 | 575 | 900 | 2,300 | 2,300 | 3,600 | 3,600 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,575 | 2,550 | 1,525 |
| 625 | 2,175 | 2,175 | 850 | 1,150 | 1,100 | 1,450 | 600 | 925 | 2,275 | 2,275 | 3,550 | 3,550 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,550 | 2,525 | 1,525 |
| 600 | 2,175 | 2,175 | 850 | 1,150 | 1,125 | 1,450 | 625 | 950 | 2,275 | 2,275 | 3,550 | 3,550 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,525 | 2,525 | 1,550 |
| 575 | 2,175 | 2,175 | 875 | 1,175 | 1,125 | 1,450 | 650 | 950 | 2,250 | 2,250 | 3,500 | 3,500 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,475 | 2,500 | 1,550 |
| 550 | 2,175 | 2,175 | 900 | 1,175 | 1,150 | 1,475 | 675 | 975 | 2,225 | 2,225 | 3,450 | 3,450 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,450 | 2,475 | 1,550 |
| 525 | 2,175 | 2,175 | 900 | 1,200 | 1,150 | 1,475 | 700 | 975 | 2,200 | 2,200 | 3,450 | 3,450 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,425 | 2,475 | 1,575 |
| 500 | 2,175 | 2,175 | 925 | 1,200 | 1,150 | 1,475 | 725 | 1,000 | 2,175 | 2,175 | 3,400 | 3,400 | 11,400 | 9,000 | 7,675 | 7,200 | 4,650 | 3,625 | 3,375 | 2,450 | 1,575 |
| 475 | 2,175 | 2,175 | 925 | 1,225 | 1,175 | 1,500 | 725 | 1,000 | 2,175 | 2,175 | 3,350 | 3,350 | 11,400 | 9,000 | 7,675 | 7,200 | 4,650 | 3,625 | 3,350 | 2,425 | 1,600 |
| 450 | 2,175 | 2,175 | 950 | 1,225 | 1,175 | 1,500 | 750 | 1,025 | 2,150 | 2,150 | 3,350 | 3,350 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,325 | 2,425 | 1,600 |
| 425 | 2,175 | 2,175 | 950 | 1,225 | 1,200 | 1,500 | 750 | 1,025 | 2,125 | 2,125 | 3,300 | 3,300 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,300 | 2,400 | 1,600 |
| 400 | 2,175 | 2,175 | 975 | 1,250 | 1,200 | 1,525 | 775 | 1,050 | 2,100 | 2,100 | 3,250 | 3,250 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,275 | 2,375 | 1,600 |
| 375 | 2,175 | 2,175 | 975 | 1,250 | 1,200 | 1,525 | 775 | 1,050 | 2,075 | 2,075 | 3,250 | 3,250 | 11,400 | 9,000 | 7,700 | 7,225 | 4,650 | 3,625 | 3,250 | 2,375 | 1,625 |
| 350 | 2,175 | 2,175 | 975 | 1,250 | 1,225 | 1,525 | 800 | 1,050 | 2,075 | 2,075 | 3,200 | 3,200 | 11,400 | 9,000 | 7,700 | 7,225 | 4,650 | 3,650 | 3,225 | 2,350 | 1,625 |
| 325 | 2,175 | 2,175 | 1,000 | 1,250 | 1,225 | 1,525 | 800 | 1,075 | 2,050 | 2,050 | 3,200 | 3,200 | 11,200 | 8,650 | 7,525 | 7,050 | 4,550 | 3,550 | 3,200 | 2,350 | 1,625 |
| 300 | 2,150 | 2,150 | 1,000 | 1,275 | 1,225 | 1,550 | 825 | 1,075 | 2,050 | 2,050 | 3,150 | 3,150 | 10,850 | 8,400 | 7,275 | 6,825 | 4,400 | 3,450 | 3,150 | 2,325 | 1,625 |
| 275 | 2,150 | 2,150 | 1,000 | 1,275 | 1,225 | 1,550 | 825 | 1,075 | 2,025 | 2,025 | 3,150 | 3,150 | 10,400 | 8,125 | 7,025 | 6,600 | 4,275 | 3,350 | 3,125 | 2,325 | 1,625 |
| 250 | 2,125 | 2,125 | 1,025 | 1,275 | 1,250 | 1,550 | 825 | 1,075 | 2,025 | 2,025 | 3,100 | 3,100 | 10,100 | 7,850 | 6,775 | 6,375 | 4,125 | 3,250 | 3,125 | 2,300 | 1,650 |
| 225 | 2,100 | 2,100 | 1,025 | 1,275 | 1,250 | 1,550 | 850 | 1,100 | 2,000 | 2,000 | 3,100 | 3,100 | 9,800 | 7,550 | 6,550 | 6,150 | 3,975 | 3,125 | 3,100 | 2,300 | 1,650 |
| 200 | 2,100 | 2,100 | 1,025 | 1,275 | 1,250 | 1,550 | 850 | 1,100 | 2,000 | 2,000 | 3,050 | 3,050 | 9,400 | 7,250 | 6,300 | 5,925 | 3,825 | 3,025 | 3,075 | 2,275 | 1,650 |
| 175 | 2,075 | 2,075 | 1,025 | 1,300 | 1,250 | 1,550 | 850 | 1,100 | 1,975 | 1,975 | 3,050 | 3,050 | 9,050 | 6,950 | 6,050 | 5,700 | 3,675 | 2,900 | 3,050 | 2,275 | 1,650 |
| 150 | 2,025 | 2,025 | 1,025 | 1,300 | 1,250 | 1,550 | 850 | 1,100 | 1,950 | 1,950 | 3,000 | 3,000 | 8,700 | 6,650 | 5,800 | 5,475 | 3,525 | 2,800 | 3,025 | 2,250 | 1,650 |
| 125 | 2,000 | 2,000 | 1,050 | 1,300 | 1,250 | 1,575 | 875 | 1,100 | 1,925 | 1,925 | 3,000 | 3,000 | 8,350 | 6,375 | 5,550 | 5,225 | 3,375 | 2,700 | 3,000 | 2,250 | 1,650 |
| 100 | 1,950 | 1,950 | 1,050 | 1,300 | 1,250 | 1,575 | 875 | 1,100 | 1,925 | 1,925 | 2,950 | 2,950 | 7,975 | 6,100 | 5,300 | 5,000 | 3,250 | 2,600 | 2,975 | 2,225 | 1,650 |
| 75 | 1,900 | 1,900 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,100 | 1,900 | 1,900 | 2,950 | 2,950 | 7,600 | 5,825 | 5,050 | 4,750 | 3,125 | 2,500 | 2,950 | 2,225 | 1,650 |
| 50 | 1,850 | 1,850 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,900 | 1,900 | 2,900 | 2,900 | 7,250 | 5,550 | 4,825 | 4,525 | 2,950 | 2,375 | 2,950 | 2,225 | 1,650 |
| 25 | 1,775 | 1,775 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,875 | 1,875 | 2,900 | 2,900 | 6,825 | 5,275 | 4,600 | 4,325 | 2,825 | 2,250 | 2,925 | 2,200 | 1,650 |
| 0 | 1,700 | 1,700 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,875 | 1,875 | 2,900 | 2,900 | 6,400 | 5,000 | 4,350 | 4,125 | 2,700 | 2,150 | 2,900 | 2,200 | 1,650 |

HOB_{fs} = 140 mLow HOB_{min} = 246 mHigh HOB_{min} = 557 mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 5.6e.

CASUALTY and DAMAGE Tables
Large Free Rocket
 All figures in meters

HOTEL/100 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|---------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
Dom
tks
and
orty | Severe
dam
sup
deps | Severe
dom
radios
and elec
equip | Severe
dom
hwy and
RR
brgs | Severe
dom
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced Contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,350 | | | | 0 | | | 5,500 | 2,425 | 725 | 7,600 | | | 0-15 | | | | 0-950 | |
| 1,300 | | | | 100 | | | 5,525 | 2,450 | 825 | 7,575 | | 0 | 0-20 | | | 0 | 0-1,050 | |
| 1,250 | | | | 250 | | | 5,525 | 2,475 | 900 | 7,550 | | 0-5 | 0-25 | | | 0-50 | 0-1,100 | |
| 1,200 | | | | 400 | | 0 | 5,550 | 2,500 | 950 | 7,500 | | 0-5 | 0-30 | | | 0-400 | 0-1,150 | |
| 1,150 | | | | 525 | | 1,550 | 5,550 | 2,525 | 1,025 | 7,475 | | 0-5 | 5-45 | | | 0-550 | 50-1,200 | |
| 1,100 | 0 | | | 650 | | 1,650 | 5,550 | 2,550 | 1,075 | 7,425 | | 0-5 | 5-60 | | | 0-600 | 350-1,250 | |
| 1,050 | 50 | | | 775 | | 1,675 | 5,575 | 2,575 | 1,125 | 7,400 | | 0-10 | 5-80 | | | 0-700 | 500-1,300 | |
| 1,000 | 200 | | | 875 | | 1,675 | 5,575 | 2,600 | 1,175 | 7,350 | | 0-10 | 5-120 | | | 0-800 | 600-1,350 | |
| 950 | 350 | | | 950 | 0 | 1,675 | 5,600 | 2,625 | 1,200 | 7,325 | 0 | 0-15 | 10-160 | | 0 | 0-850 | 650-1,400 | |
| 900 | 475 | | 0 | 1,050 | 1,175 | 1,675 | 5,600 | 2,625 | 1,250 | 7,275 | 0-5 | 0-20 | 10-220 | | 0-50 | 0-900 | 750-1,400 | |
| 850 | 650 | | 75 | 1,125 | 1,200 | 1,675 | 5,600 | 2,650 | 1,275 | 7,225 | 0-5 | 0-30 | 15-320 | | 0-350 | 0-950 | 800-1,450 | |
| 800 | 950 | 0 | 200 | 1,175 | 1,225 | 1,675 | 5,625 | 2,650 | 1,300 | 7,175 | 0-5 | 5-40 | 20-450 | | 0-450 | 50-1,000 | 850-1,450 | |
| 775 | 1,150 | 25 | 275 | 1,200 | 1,250 | 1,675 | 5,625 | 2,675 | 1,325 | 7,150 | 0-5 | 5-45 | 25-530 | | 0-500 | 200-1,000 | 850-1,500 | |
| 750 | 1,200 | 75 | 325 | 1,225 | 1,250 | 1,675 | 5,625 | 2,675 | 1,350 | 7,125 | 0-10 | 5-55 | 30-660 | | 0-550 | 300-1,050 | 900-1,500 | |
| 725 | 1,250 | 125 | 400 | 1,250 | 1,250 | 1,675 | 5,625 | 2,675 | 1,350 | 7,100 | 0-10 | 5-70 | 35-810 | | 0-550 | 350-1,050 | 900-1,500 | |
| 700 | 1,300 | 175 | 450 | 1,275 | 1,275 | 1,675 | 5,625 | 2,700 | 1,375 | 7,075 | 0-10 | 5-90 | 40-990 | | 0-600 | 400-1,050 | 950-1,500 | |
| 675 | 1,325 | 225 | 475 | 1,300 | 1,275 | 1,675 | 5,625 | 2,700 | 1,375 | 7,050 | 0-15 | 5-110 | 50-1,230 | | 0-600 | 450-1,100 | 950-1,550 | |
| 650 | 1,350 | 275 | 525 | 1,325 | 1,275 | 1,675 | 5,625 | 2,700 | 1,400 | 7,025 | 0-15 | 10-130 | 65-1,560 | | 0-650 | 500-1,100 | 950-1,550 | |
| 625 | 1,375 | 325 | 575 | 1,325 | 1,275 | 1,675 | 5,625 | 2,700 | 1,400 | 7,000 | 0-20 | 10-160 | 80-1,920 | | 0-700 | 500-1,100 | 1,000-1,550 | |
| 600 | 1,400 | 350 | 600 | 1,350 | 1,275 | 1,675 | 5,650 | 2,725 | 1,425 | 6,975 | 0-25 | 10-200 | 100-2,400 | | 0-700 | 550-1,100 | 1,000-1,550 | |
| 575 | 1,425 | 400 | 625 | 1,375 | 1,275 | 1,675 | 5,650 | 2,725 | 1,425 | 6,950 | 0-30 | 10-245 | 120-2,940 | | 0-700 | 600-1,150 | 1,000-1,550 | |
| 550 | 1,450 | 450 | 650 | 1,400 | 1,300 | 1,675 | 5,650 | 2,725 | 1,425 | 6,925 | 5-35 | 15-310 | 150-3,720 | | 50-750 | 600-1,150 | 1,050-1,600 | |
| 525 | 1,475 | 500 | 675 | 1,425 | 1,300 | 1,675 | 5,650 | 2,725 | 1,450 | 6,875 | 5-50 | 20-410 | 200-4,920 | | 100-750 | 650-1,150 | 1,050-1,600 | |
| 500 | 1,500 | 550 | 700 | 1,450 | 1,300 | 1,675 | 5,650 | 2,725 | 1,450 | 6,850 | 5-55 | 20-500 | 240-6,000 | 0-5 | 250-800 | 650-1,150 | 1,050-1,600 | 0-50 |
| 475 | 1,525 | 600 | 725 | 1,450 | 1,300 | 1,675 | 5,650 | 2,750 | 1,450 | 6,825 | 5-85 | 30-750 | 360-9,000 | 0-5 | 300-800 | 650-1,150 | 1,050-1,600 | 0-150 |
| 450 | 1,550 | 650 | 750 | 1,475 | 1,300 | 1,675 | 5,650 | 2,750 | 1,475 | 6,800 | 5-105 | 40-950 | 460-11,400 | 0-5 | 350-800 | 700-1,150 | 1,100-1,600 | 0-250 |
| 425 | 1,575 | 700 | 775 | 1,500 | 1,300 | 1,675 | 5,650 | 2,750 | 1,475 | 6,775 | 10-140 | 50-1,250 | 600-15,000 | 0-5 | 350-800 | 700-1,200 | 1,100-1,600 | 0-300 |
| 400 | 1,600 | 775 | 800 | 1,525 | 1,325 | 1,675 | 5,650 | 2,750 | 1,475 | 6,750 | 10-190 | 70-1,650 | 800-19,800 | 0-10 | 400-850 | 700-1,200 | 1,100-1,650 | 0-300 |
| 375 | 1,600 | 850 | 800 | 1,550 | 1,325 | 1,650 | 5,650 | 2,750 | 1,500 | 6,700 | 10-240 | 90-2,150 | 1,040-25,800 | 0-10 | 450-850 | 750-1,200 | 1,100-1,650 | 0-350 |
| 350 | 1,625 | 900 | 825 | 1,550 | 1,325 | 1,650 | 5,650 | 2,750 | 1,500 | 6,675 | 15-300 | 110-2,650 | 1,280-31,800 | 0-10 | 450-850 | 750-1,250 | 1,100-1,650 | 0-400 |
| 325 | 1,650 | 925 | 850 | 1,575 | 1,325 | 1,650 | 5,500 | 2,700 | 1,500 | 6,650 | 15-370 | 140-3,300 | 1,600-39,600 | 0-10 | 450-850 | 750-1,250 | 1,150-1,650 | 0-400 |
| 300 | 1,650 | 950 | 850 | 1,575 | 1,350 | 1,650 | 5,325 | 2,625 | 1,450 | 6,625 | 20-430 | 160-3,900 | 1,880-46,800 | 0-15 | 500-850 | 750-1,250 | 1,150-1,650 | 0-400 |
| 275 | 1,650 | 950 | 875 | 1,600 | 1,350 | 1,650 | 5,150 | 2,525 | 1,400 | 6,575 | 25-520 | 190-4,700 | 2,260-56,400 | 0-15 | 500-900 | 800-1,250 | 1,150-1,650 | 0-450 |
| 250 | 1,650 | 950 | 900 | 1,600 | 1,350 | 1,650 | 4,950 | 2,450 | 1,375 | 6,550 | 25-610 | 220-5,500 | 2,640-66,000 | 0-15 | 500-900 | 800-1,250 | 1,150-1,650 | 0-450 |
| 225 | 1,650 | 975 | 900 | 1,600 | 1,375 | 1,650 | 4,775 | 2,350 | 1,325 | 6,525 | 30-720 | 260-6,500 | 3,120-78,000 | 0-20 | 550-900 | 800-1,250 | 1,150-1,650 | 0-450 |
| 200 | 1,625 | 975 | 925 | 1,600 | 1,375 | 1,650 | 4,600 | 2,275 | 1,275 | 6,475 | 40-990 | 360-9,000 | 4,320-108,000 | 0-25 | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 |
| 175 | 1,625 | 975 | 925 | 1,600 | 1,375 | 1,625 | 4,400 | 2,175 | 1,225 | 6,450 | 50-1,210 | 440-11,000 | 5,280-132,000 | 0-30 | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 |
| 150 | 1,600 | 975 | 925 | 1,575 | 1,350 | 1,600 | 4,225 | 2,100 | 1,175 | 6,400 | 65-1,540 | 560-14,000 | 6,720-168,000 | 5-40 | 550-900 | 800-1,250 | 1,150-1,650 | 50-500 |
| 125 | 1,575 | 975 | 900 | 1,550 | 1,325 | 1,575 | 4,025 | 2,025 | 1,150 | 6,375 | | | | | | | | |
| 100 | 1,525 | 950 | 850 | 1,500 | 1,300 | 1,525 | 3,850 | 1,925 | 1,100 | 6,350 | | | | | | | | |
| 75 | 1,450 | 925 | 825 | 1,475 | 1,250 | 1,475 | 3,675 | 1,850 | 1,050 | 6,300 | | | | | | | | |
| 50 | 1,350 | 875 | 750 | 1,400 | 1,175 | 1,425 | 3,475 | 1,750 | 1,000 | 6,275 | | | | | | | | |
| 25 | 1,225 | 825 | 675 | 1,325 | 1,100 | 1,375 | 3,300 | 1,675 | 950 | 6,225 | | | | | | | | |
| 0 | 1,100 | 750 | 600 | 1,250 | 1,075 | 1,325 | 3,100 | 1,575 | 925 | 6,200 | | | | | | | | |
| | | | | | | | | | | | FALLOUT GOVERNS | | | | | | | |

LFR 1

FALLOUT GOVERNS

Figure 5.6e continued.

¹Large Free Rocket.

CONTINGENT EFFECTS Tables
Large Free Rocket

INDUCED RADIATION IN SOILS (See note 1.)

Fallout activity is not significant.

Impact burst not tabulated, fallout governs.

| Yield
KT | HOB | Estimated radii in meters of 2 rad/hr contour
of induced radiation, one hour after burst. | | | | Estimated induced radiation intensity, one
hour after burst, at GZ. In rad/hr. | | | |
|-------------|------|--|------------------------------------|---|---|---|--------------|---------------|--------------|
| | | Soil type I
(Liberia,
Africa) | Soil type II
(Nevada
desert) | Soil type III
(lava clay,
Hawaii) | Soil type IV
(beach sand,
Pensacola, Fla) | Soil type I | Soil type II | Soil type III | Soil type IV |
| DELTA/5 | Low | 200-550 | 450-800 | 700-1,150 | 0-150 | 5-125 | 50-1,140 | 540-13,500 | 0-5 |
| | High | 0-550 | 400-800 | 700-1,150 | 0 | 0-35 | 15-325 | 160-3,900 | 0 |
| ECHO/10 | Low | 300-600 | 500-900 | 800-1,350 | 0-250 | 10-250 | 90-2,250 | 1,080-27,000 | 0-10 |
| | High | 150-550 | 450-900 | 800-1,350 | 0 | 5-55 | 20-470 | 230-5,640 | 0 |
| FOXTROT/20 | Low | 350-750 | 600-1,000 | 900-1,400 | 0-300 | 20-410 | 150-3,700 | 1,780-44,000 | 0-10 |
| | High | 150-700 | 500-950 | 850-1,400 | 0 | 5-75 | 30-660 | 320-7,920 | 0 |
| GOLF/50 | Low | 450-800 | 700-1,150 | 1,050-1,550 | 0-400 | 15-310 | 110-2,750 | 1,320-33,000 | 0-10 |
| | High | 250-700 | 550-1,100 | 1,000-1,500 | 0-50 | 5-55 | 20-475 | 230-5,700 | 0-5 |
| HOTEL/100 | Low | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 | 40-990 | 360-9,000 | 4,320-108,000 | 0-25 |
| | High | 100-750 | 650-1,150 | 1,050-1,650 | 0 | 5-50 | 20-410 | 200-4,920 | 0 |

NOTE: For description of chemical composition and effects of variations in chemical composition in soil types, see FM 101-31-1, app III, annex F.

Figure 5.7a.

TREE BLOWDOWN (See note.)

All distances in meters

| Yield
KT | OBSTACLES TO MOVEMENT | | | | | | | CASUALTIES TO
EXPOSED PERSONNEL | | |
|-------------|--------------------------------------|------------|-------------|------------|-----------------------------|--------------------|---------------------|------------------------------------|--------------------|---------------------|
| | Foot and wheeled vehicle
movement | | | | Tracked vehicle
movement | | | | | |
| | Type
I | Type
II | Type
III | Type
IV | Type
I | Types
II, IV(a) | Types
III, IV(a) | Type
I | Types
II, IV(a) | Types
III, IV(a) |
| DELTA/5 | 600 | 800 | 900 | 1,400 | 600 | 800 | 900 | 400 | 600 | 600 |
| ECHO/10 | 750 | 1,000 | 1,100 | 1,900 | 750 | 1,000 | 1,100 | 600 | 800 | 900 |
| FOXTROT/20 | 1,050 | 1,300 | 1,500 | 2,400 | 1,050 | 1,300 | 1,500 | 750 | 1,000 | 1,150 |
| GOLF/50 | 1,650 | 2,100 | 2,500 | 3,900 | 1,650 | 2,100 | 2,100 | 1,200 | 1,550 | 1,700 |
| HOTEL/100 | 2,000 | 2,600 | 3,100 | 5,000 | 2,000 | 2,600 | 3,100 | 1,700 | 2,000 | 2,250 |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 5.7b.

LIGHT AIRCRAFT IN FLIGHT (See note 1.)

| Yield
KT | AIRCRAFT SAFETY RADII—meters
(See note 2.) | | |
|-------------|---|-----------------------|---------------------------|
| | Light fixed
wing | Recon and
obsn hel | Transport
and util hel |
| DELTA/5 | 9,000 | 9,000 | 7,000 |
| ECHO/10 | 10,000 | 10,000 | 9,000 |
| FOXTROT/20 | 13,000 | 13,000 | 11,000 |
| GOLF/50 | 17,000 | 17,000 | 15,000 |
| HOTEL/100 | 22,000 | 21,000 | 18,000 |

- NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.
2. A buffer distance has been added to these radii of safety.

Figure 5.7c.

CONTINGENT EFFECTS Tables (continued) **Large Free Rocket**

FIRE AREAS (See note.)

| Yield
KT | HOB | Expected radii for ignition of wildland fuels during fire season—meters | | | | | | | |
|-------------|--------|---|----------|-----------|----------|---|----------|-----------|----------|
| | | Dry climate (25 percent relative humidity) | | | | Damp climate (75 percent relative humidity) | | | |
| | | Class I | Class II | Class III | Class IV | Class I | Class II | Class III | Class IV |
| DELTA/5 | Air | 2,000 | 1,800 | 1,700 | 1,400 | 1,800 | 1,800 | 1,500 | 1,100 |
| | Impact | 1,200 | 1,100 | 1,000 | 800 | 1,100 | 1,100 | 900 | 700 |
| ECHO/10 | Air | 2,600 | 2,400 | 2,200 | 1,800 | 2,400 | 2,400 | 2,100 | 1,500 |
| | Impact | 1,500 | 1,400 | 1,300 | 1,100 | 1,400 | 1,400 | 1,200 | 900 |
| FOXTROT/20 | Air | 3,400 | 3,200 | 2,900 | 2,400 | 3,200 | 3,200 | 2,700 | 2,000 |
| | Impact | 2,000 | 1,900 | 1,700 | 1,400 | 1,900 | 1,900 | 1,500 | 1,200 |
| GOLF/50 | Air | 4,900 | 4,500 | 4,100 | 3,300 | 4,500 | 4,500 | 3,800 | 2,900 |
| | Impact | 2,800 | 2,600 | 2,300 | 2,000 | 2,600 | 2,600 | 2,200 | 1,600 |
| HOTEL/100 | Air | 6,400 | 5,900 | 5,400 | 4,400 | 5,900 | 5,900 | 4,800 | 3,700 |
| | Impact | 3,500 | 3,200 | 3,000 | 2,500 | 3,200 | 3,200 | 2,800 | 2,100 |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 5.7d.

CRATER DIMENSIONS (See note.)

| Yield
KT | Approx crater dimensions for various soil types—meters | | | | | | | |
|-------------|--|-------|---|-------|--|-------|---|-------|
| | Hard rock
(granite and
sandstone) | | Soft rock
(dry soil or
soft rock) | | Saturated soil
(water slowly
fills crater) | | Saturated soil
(water rapidly
fills crater) | |
| | Radius | Depth | Radius | Depth | Radius | Depth | Radius | Depth |
| DELTA/5 | 27 | 8 | 34 | 10 | 50 | 15 | 67 | 7 |
| ECHO/10 | 34 | 10 | 42 | 12 | 63 | 18 | 84 | 8 |
| FOXTROT/20 | 43 | 11 | 53 | 14 | 80 | 21 | 106 | 10 |
| GOLF/50 | 58 | 14 | 72 | 17 | 108 | 26 | 144 | 12 |
| HOTEL/100 | 73 | 17 | 91 | 21 | 136 | 31 | 182 | 15 |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 5.7e.

TACTICAL SYSTEM ACCURACY DATA **Large Free Rocket** **All distances in meters**

| Range | Equivalent
CEP ¹ | Probable errors | | | Offset
distance
(d _o) | Range | Equivalent
CEP ¹ | Probable errors | | | Offset
distance
(d _o) |
|--------|--------------------------------|-----------------|-----------------|-----------------|---|--------|--------------------------------|-----------------|-----------------|-----------------|---|
| | | PE _R | PE _d | PE _h | | | | PE _R | PE _d | PE _h | |
| 7,000 | 97 | 35 | 70 | 35 | 190 | 24,000 | 332 | 120 | 240 | 120 | 650 |
| 8,000 | 111 | 40 | 80 | 40 | 220 | 25,000 | 345 | 125 | 250 | 125 | 675 |
| 9,000 | 125 | 45 | 90 | 45 | 245 | 26,000 | 359 | 130 | 260 | 130 | 705 |
| 10,000 | 138 | 50 | 100 | 50 | 270 | 27,000 | 373 | 135 | 270 | 135 | 730 |
| 11,000 | 152 | 55 | 110 | 55 | 300 | 28,000 | 387 | 140 | 280 | 140 | 760 |
| 12,000 | 166 | 60 | 120 | 60 | 325 | 29,000 | 401 | 145 | 290 | 145 | 785 |
| 13,000 | 180 | 65 | 130 | 65 | 355 | 30,000 | 414 | 150 | 300 | 150 | 810 |
| 14,000 | 194 | 70 | 140 | 70 | 380 | 31,000 | 428 | 155 | 310 | 155 | 840 |
| 15,000 | 207 | 75 | 150 | 75 | 405 | 32,000 | 442 | 160 | 320 | 160 | 865 |
| 16,000 | 221 | 80 | 160 | 80 | 435 | 33,000 | 456 | 165 | 330 | 165 | 895 |
| 17,000 | 235 | 85 | 170 | 85 | 460 | 34,000 | 470 | 170 | 340 | 170 | 920 |
| 18,000 | 249 | 90 | 180 | 90 | 490 | 35,000 | 483 | 175 | 350 | 175 | 945 |
| 19,000 | 263 | 95 | 190 | 95 | 515 | 36,000 | 497 | 180 | 360 | 180 | 975 |
| 20,000 | 276 | 100 | 200 | 100 | 540 | 37,000 | 511 | 185 | 370 | 185 | 1,000 |
| 21,000 | 290 | 105 | 210 | 105 | 570 | 38,000 | 525 | 190 | 380 | 190 | 1,030 |
| 22,000 | 304 | 110 | 220 | 110 | 595 | 39,000 | 539 | 195 | 390 | 195 | 1,055 |
| 23,000 | 318 | 115 | 230 | 115 | 625 | 40,000 | 552 | 200 | 400 | 200 | 1,080 |

¹Equivalent CEP = $1.2345 (PE_R^2 + PE_d^2)^{1/2}$.

Figure 5.8.

¹Large Free Rocket.

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CHAPTER 6

LIGHT GUIDED MISSILE

6.1 GENERAL

a. *Orientation.* This chapter contains employment data for the light guided missile with its associated warhead sections fired from a mobile launcher.

b. *Weapon characteristics.*

(1) *Yield.* The warhead sections for the light guided missile have yields of Alfa/0.5 KT, Bravo/1 KT, Charlie/2 KT, Delta/5 KT, Echo/10 KT, and Foxtrot/20 KT.

(2) *Fuzing.*

(a) The fuzing for the light guided missile provides airburst and impact fuzing options. The airburst option is radar-fuzed and can be set for either high or low airburst; these are the only heights of burst available. When the fuze is set for an airburst, the system provides for an option of either contact backup or contact preclusion.

(b) The fuzes are preset at the following heights of burst:

| Warhead section | HOB option | HOB (meters) | PE _h (meters) |
|-----------------|------------|--------------|--------------------------|
| Alfa/0.5 KT | low | 129 | 30 |
| | high | 189 | |
| Bravo/1 KT | low | 135 | 30 |
| | high | 210 | |
| Charlie/2 KT | low | 143 | 30 |
| | high | 238 | |
| Delta/5 KT | low | 157 | 30 |
| | high | 285 | |
| Echo/10 KT | low | 170 | 30 |
| | high | 332 | |
| Foxtrot/20 KT | low | 187 | 30 |
| | high | 391 | |

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The minimum and maximum ranges of the light guided missile are 10,000 meters and 50,000 meters.

(2) *Tactical system accuracy.* The tactical system errors for the light guided missile are independent of range. A circular error probable (CEP) of 100 meters has been used in the computation of the weapon selection tables. The vertical probable error (PE_h) is 30 meters.

(3) *Unit carrying capacity.* A light guided missile unit can draw, transport, and store at any one time a total of 12 complete rounds per battalion.

(4) *Response time.* The times shown below can be used as a basis for general tactical planning. They are considered to be applicable to a reasonably well-trained unit operating in daylight under favorable weather conditions. Blackout operations, unfavorable weather, enemy interference, equipment breakdown, or faulty test indications will extend the times listed. *For detailed tactical planning, the response times should be the actual times obtained from the artillery unit concerned.*

| Situation | Time (minutes) | Remarks |
|-----------------|----------------|--|
| I ¹ | 30 | For situation I, add 20 minutes if warhead section must be removed and a new warhead section with required yield mated to missile. |
| II ² | 10 | |

¹Situation I (high readiness)—the complete round and launcher are in a firing position and survey is completed. Preliminary firing data for a specific target are not available. Prefire checkouts which can be performed prior to the receipt of a fire mission have been completed. (May be used to engage targets of opportunity.)

²Situation II (maximum readiness)—firing data for a specific target have been computed and applied to the weapon system. The unit is awaiting an order to fire. (Typical of readiness to engage on-call target).

(5) *Special considerations.* The target analyst needs no special information from the unit fire direction center for target analysis. For an airburst fuzing option, the fire mission to the unit includes the radar height of burst (HOB) setting, high or low; it also includes whether contact backup or contact preclusion is desired. When contact backup is chosen, a fallout prediction is made. When an impact fuzing option is selected, the fire mission specifies HOB impact.

LGM 1

EXPOSED Personnel Targets Light Guided Missile

| Yield

KT | HOB option
(HOB-meters)

(See note) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d ₀
(meters) |
|-----------------|--|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|-------|--|
| | | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | |
| | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | | | |
| .5 | High (189) | 1,700 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 350 | 625 | 185 |
| | Low (129) | 1,700 | .9/.9 | .8/.9 | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 375 | 650 | (all
yields) |
| | Impact | *1,700 | .9/.9 | .8/.9 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 425 | 675 | |
| 1 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | | | |
| | High (210) | 1,900 | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 500 | 750 | |
| | Low (135) | 1,900 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 550 | 750 | |
| | Impact | *1,900 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 575 | 775 | |
| 2 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | | | |
| | High (238) | 2,400 | .9/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 550 | 850 | |
| | Low (143) | 2,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 575 | 875 | |
| | Impact | *2,000 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 625 | 900 | |
| 5 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 2,600 | | | |
| | High (285) | 3,400 | .8/.9 | .6/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 725 | 975 | |
| | Low (157) | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 775 | 1,025 | |
| | Impact | *2,300 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 800 | 1,050 | |
| 10 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | | | |
| | High (332) | 4,300 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,100 | |
| | Low (170) | 4,300 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 875 | 1,150 | |
| | Impact | *2,800 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 900 | 1,175 | |
| 20 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 2,600 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | | | |
| | High (391) | 6,100 | .7/.8 | .6/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | 1,150 | 1,175 | |
| | Low (187) | 6,100 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,100 | 1,225 | |
| | Impact | *3,600 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000 | 1,250 | |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
Low airburst—Precludes fallout.
Impact burst—Produces fallout.

*Initial effects only. Fallout governs.

Figure 6.1.

PROTECTED Personnel Targets Light Guided Missile

| Yield | HOB option
(HOB-meters) | Minimum
safe
distance
(negligible
risk,
UnR Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D | | Offset
distance
d _o
(meters) | |
|-------|----------------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------|---------|--|---------|
| | | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | (meters) | Prompt | | Delayed |
| | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 1,200 | | | | |
| KT | (See note) | | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 500 | 600 | 700 | 800 | 900 | 1,000 | 1,100 | 1,200 | Prompt | Delayed | (meters) | |
| .5 | High (189) | 1,700 | .6/.9 | .4/.7 | .3/.5 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 175 | 425 | 185 | |
| | Low (129) | 1,700 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 225 | 475 | (all
yields) | |
| | Impact | *1,700 | .9/.9 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 300 | 500 | | |
| 1 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | | | | |
| | High (210) | 1,900 | .7/.8 | .5/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 300 | 525 | | |
| | Low (135) | 1,900 | .8/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 350 | 550 | | |
| | Impact | *1,900 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 400 | 600 | | |
| 2 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | | | | |
| | High (238) | 2,400 | .8/.9 | .6/.8 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .7/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | | 350 | 625 | | |
| | Low (143) | 2,400 | .8/.9 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 375 | 650 | | |
| | Impact | *2,000 | .9/.9 | .8/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .8/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 475 | 675 | | |
| 5 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | | | | |
| | High (285) | 3,400 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 525 | 750 | | |
| | Low (157) | 3,400 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 575 | 800 | | |
| | Impact | *2,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 625 | 825 | | |
| 10 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | | | | |
| | High (332) | 4,300 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 600 | 825 | | |
| | Low (170) | 4,300 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 675 | 900 | | |
| | Impact | *2,800 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 700 | 925 | | |
| 20 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | | | | | | |
| | High (391) | 6,100 | .6/.7 | .4/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | 675 | 925 | | |
| | Low (187) | 6,100 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 750 | 1,000 | | |
| | Impact | *3,600 | .7/.8 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .9/.9 | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | | 800 | 1,025 | | |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
Low airburst—Precludes fallout.
Impact burst—Produces fallout.

*Initial effects only. Fallout governs.

Figure 6.2.

LGM 1

Light Guided Missile.

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MATERIEL Targets Light Guided Missile

| Yield

KT | HOB option
(HOB—meters)

(See note) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | |
|-----------------|--|--|--|-------|-------|-------|-------|-------|-------|-------|--|------------------------|-------|-------|-------|-------|-------|-------|--|--|
| | | | WHEELED VEHICLES | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | |
| | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) |
| 50 | 100 | 150 | 200 | 250 | 300 | 350 | | 50 | 100 | 150 | | 200 | 250 | | | | | | | |
| .5 | High (189) | 1,700 | .0/.1 | | | | | | | 0 | .0/.0 | | | | | | | 0 | 185 (all
yields) | |
| | Low (129) | 1,700 | .0/.7 | .0/.6 | .0/.5 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | 0 | .0/.2 | .0/.1 | | | | | | 0 | | |
| | Impact | *1,700 | .1/.6 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | 125 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 100 | | |
| 1 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) |
| | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 50 | 100 | | 150 | 200 | 250 | 300 | 350 | | | | |
| | High (210) | 1,900 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | | | 0 | .0/.0 | | | | | | | 0 | |
| | Low (135) | 1,900 | .3/.7 | .2/.7 | .1/.6 | .1/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | 75 | .0/.2 | .0/.1 | | | | | | 0 | |
| | Impact | *1,900 | .4/.8 | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 175 | .0/.5 | .1/.5 | .1/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 125 | |
| 2 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) |
| | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 50 | 100 | | 150 | 200 | 250 | 300 | 350 | 400 | | | |
| | High (238) | 2,400 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 0 | .0/.0 | | | | | | | 0 | |
| | Low (143) | 2,400 | .8/.9 | .7/.9 | .5/.7 | .4/.5 | .2/.4 | .1/.3 | .1/.2 | .1/.1 | 250 | .0/.5 | .0/.2 | .0/.1 | | | | | 25 | |
| | Impact | *2,000 | .7/.9 | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | 225 | .3/.7 | .3/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 150 | |
| 5 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) |
| | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1,000 | 150 | 200 | | 250 | 300 | 350 | 400 | 450 | 500 | | | |
| | High (285) | 3,400 | .2/.6 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 125 | .0/.1 | | | | | | | 0 | |
| | Low (157) | 3,400 | .9/.9 | .7/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.4 | .2/.3 | .1/.2 | 425 | .3/.7 | .3/.6 | .2/.5 | .1/.4 | .1/.4 | .0/.3 | .0/.2 | .0/.2 | 125 |
| | Impact | *2,300 | .6/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 225 | |
| 10 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) |
| | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 200 | 300 | | 400 | 500 | 600 | 700 | 800 | 900 | | | |
| | High (332) | 4,300 | .5/.8 | .2/.6 | .1/.4 | .0/.2 | .0/.2 | .0/.1 | | | 275 | .0/.1 | | | | | | | 0 | |
| | Low (170) | 4,300 | .9/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 600 | .7/.9 | .5/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | 225 |
| | Impact | *2,800 | .7/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.1 | | | 450 | .7/.9 | .6/.7 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.1 | | 300 | |
| 20 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) |
| | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 300 | 400 | | 500 | 600 | 700 | 800 | 900 | 1,000 | | | |
| | High (391) | 6,100 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | 625 | .0/.2 | .0/.1 | | | | | | 25 | |
| | Low (187) | 6,100 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 825 | .8/.9 | .7/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.4 | .1/.3 | .1/.2 | 375 |
| | Impact | *3,600 | .7/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | 575 | .8/.9 | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 400 | |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
Low airburst—Precludes fallout.
Impact burst—Produces fallout.

*Initial effects only. Fallout governs.

Figure 6.3.

LGM 1

Troop Safety Distances—Meters **Light Guided Missile**

| Range | Yield | Height of burst option | Minimum Distance Required for Troop Vulnerability and Degree of Risk Shown | | | | | | | | |
|--|---------------|------------------------|--|----------|-----------|----------------|----------|-----------|------------------|----------|-----------|
| | | | Unwarned Exposed | | | Warned Exposed | | | Warned Protected | | |
| | | | NEG Risk | MOD Risk | EMER Risk | NEG Risk | MOD Risk | EMER Risk | NEG Risk | MOD Risk | EMER Risk |
| All ranges from 10,000 through 50,000 meters | ALFA/.5 KT | High | 1,700 | 1,500 | 1,200 | 1,700 | 1,500 | 1,200 | 1,400 | 1,200 | 1,000 |
| | | Low | 1,700 | 1,500 | 1,200 | 1,700 | 1,500 | 1,200 | 1,400 | 1,200 | 1,000 |
| | | Impact ¹ | 1,700 | 1,500 | 1,200 | 1,700 | 1,500 | 1,200 | 1,400 | 1,200 | 1,000 |
| | BRAVO/1 KT | High | 1,900 | 1,600 | 1,400 | 1,900 | 1,600 | 1,400 | 1,600 | 1,400 | 1,200 |
| | | Low | 1,900 | 1,600 | 1,400 | 1,900 | 1,600 | 1,400 | 1,600 | 1,400 | 1,200 |
| | | Impact ¹ | 1,900 | 1,600 | 1,400 | 2,000 | 1,600 | 1,400 | 1,600 | 1,500 | 1,200 |
| | CHARLIE/2 KT | High | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,700 | 1,400 | 1,200 |
| | | Low | 2,400 | 1,800 | 1,500 | 2,000 | 1,700 | 1,500 | 1,700 | 1,500 | 1,200 |
| | | Impact ¹ | 2,000 | 1,700 | 1,500 | 2,000 | 1,700 | 1,500 | 1,700 | 1,500 | 1,200 |
| | DELTA/5 KT | High | 3,400 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,800 | 1,600 | 1,300 |
| | | Low | 3,400 | 2,600 | 2,200 | 2,300 | 1,900 | 1,600 | 1,900 | 1,600 | 1,300 |
| | | Impact ¹ | 2,300 | 1,900 | 1,600 | 2,300 | 1,900 | 1,600 | 1,900 | 1,600 | 1,400 |
| | ECHO/10 KT | High | 4,300 | 3,400 | 3,200 | 2,900 | 2,000 | 1,700 | 2,000 | 1,700 | 1,400 |
| | | Low | 4,300 | 3,400 | 3,200 | 2,900 | 2,100 | 1,800 | 2,000 | 1,700 | 1,400 |
| | | Impact ¹ | 2,800 | 2,100 | 1,800 | 2,400 | 2,100 | 1,800 | 2,000 | 1,700 | 1,500 |
| | FOXTROT/20 KT | High | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,000 | 2,400 | 1,800 | 1,500 |
| | | Low | 6,100 | 4,300 | 3,700 | 3,800 | 2,500 | 2,100 | 2,200 | 1,900 | 1,600 |
| | | Impact ¹ | 3,600 | 2,700 | 2,300 | 2,500 | 2,200 | 1,900 | 2,100 | 1,900 | 1,600 |

NOTE: The troop safety distances include the safety radius for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly disposition. See figure 6.5 for special friendly troop orientations.

¹Initial effects only. Fallout governs.

Figure 6.4.

SUPPLEMENTARY TROOP SAFETY Tables Light Guided Missile

The troop safety distances in figure 6.4 are based on the friendly troop orientation shown in figure 1 below. The circular delivery pattern of the light guided missile may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

Special Troop Safety Orientations

LEGEND
 DGZ - Desired ground zero.
 R_s - Safety radius.
 d_b - Buffer distance.
 ~~~~~ - Friendly troops.  
 ➔ - Direction of fire.

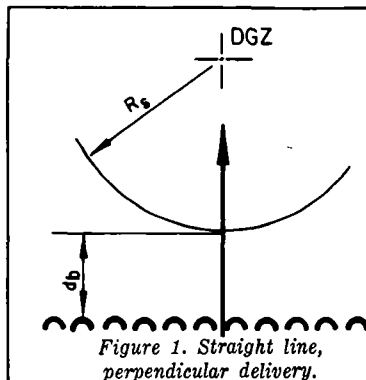


Figure 1. Straight line, perpendicular delivery.

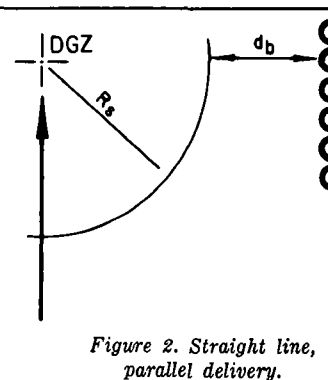


Figure 2. Straight line, parallel delivery.

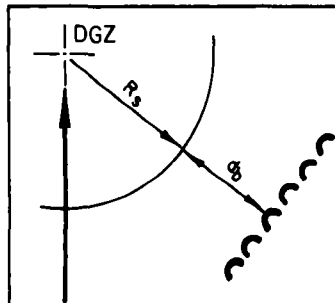


Figure 3. Straight line, 45° delivery.

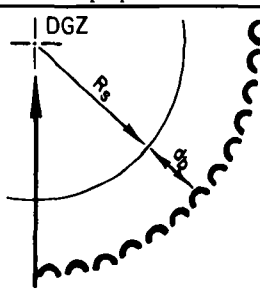


Figure 4. Quarter circle.

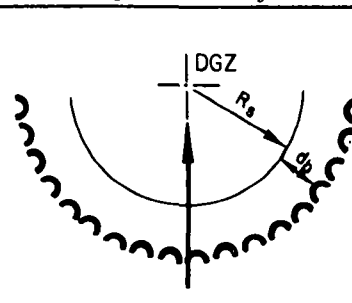


Figure 5. Half circle.

When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figure 6.4 must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options—All Yields |                                          |                                     |                        |                     |
|----------------------------------------|------------------------------------------|-------------------------------------|------------------------|---------------------|
| Range (meters)                         | Straight line, parallel delivery (fig 2) | Straight line, 45° delivery (fig 3) | Quarter circle (fig 4) | Half circle (fig 5) |
| All ranges                             | 0                                        | 0                                   | +100                   | +100                |

Figure 6.5.

LGM 1

CASUALTY and DAMAGE Tables  
Light Guided Missile

All figures in meters

| 1   | 2                 | 3       | 4                   | 5       | 6                | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16   | 17              | 18    | 19   | 20                | 21  | 22   |
|-----|-------------------|---------|---------------------|---------|------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|------|-----------------|-------|------|-------------------|-----|------|
| HOB | Exposed personnel |         | Protected personnel |         | Personnel in APC |         | Personnel in 1-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |      |                 |       |      |                   |     |      |
|     |                   |         |                     |         |                  |         |                                |         |                                   |         |                          |         | Unwarned, exposed |       |      | Warned, exposed |       |      | Warned, protected |     |      |
|     | Prompt            | Delayed | Prompt              | Delayed | Prompt           | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer | Neg             | Mod   | Emer | Neg               | Mod | Emer |
| 675 |                   | 0       |                     |         |                  | 0       |                                |         |                                   |         |                          | 0       | 1,300             | 1,000 | 675  | 1,300           | 1,000 | 675  | 1,000             | 725 | 325  |
| 650 |                   | 125     |                     |         |                  | 0       |                                |         |                                   |         |                          | 150     | 1,325             | 1,025 | 700  | 1,325           | 1,025 | 700  | 1,025             | 750 | 375  |
| 625 |                   | 225     |                     |         |                  | 150     |                                |         |                                   | 0       |                          | 225     | 1,325             | 1,050 | 725  | 1,325           | 1,050 | 725  | 1,050             | 775 | 425  |
| 600 |                   | 275     |                     |         |                  | 225     |                                |         |                                   | 100     |                          | 275     | 1,350             | 1,050 | 750  | 1,350           | 1,050 | 750  | 1,050             | 775 | 450  |
| 575 |                   | 325     |                     |         |                  | 275     |                                |         |                                   | 200     |                          | 325     | 1,350             | 1,075 | 775  | 1,350           | 1,075 | 775  | 1,075             | 800 | 500  |
| 550 |                   | 375     |                     |         |                  | 325     |                                |         |                                   | 250     |                          | 375     | 1,350             | 1,075 | 800  | 1,350           | 1,075 | 800  | 1,075             | 825 | 525  |
| 525 |                   | 400     |                     |         |                  | 375     |                                |         |                                   | 300     |                          | 400     | 1,375             | 1,100 | 800  | 1,375           | 1,100 | 800  | 1,100             | 850 | 550  |
| 500 |                   | 425     |                     | 0       |                  | 400     |                                |         |                                   | 350     |                          | 450     | 1,375             | 1,100 | 825  | 1,375           | 1,100 | 825  | 1,100             | 850 | 575  |
| 475 |                   | 450     |                     | 150     |                  | 425     |                                |         |                                   | 375     | 0                        | 475     | 1,375             | 1,125 | 825  | 1,375           | 1,125 | 825  | 1,125             | 875 | 600  |
| 450 |                   | 475     |                     | 225     | 0                | 450     |                                |         |                                   | 400     | 300                      | 500     | 1,400             | 1,125 | 850  | 1,400           | 1,125 | 850  | 1,125             | 875 | 600  |
| 425 | 0                 | 500     |                     | 275     | 150              | 475     |                                |         | 0                                 | 425     | 375                      | 500     | 1,400             | 1,125 | 850  | 1,400           | 1,125 | 850  | 1,125             | 900 | 625  |
| 400 | 150               | 525     |                     | 300     | 200              | 500     |                                | 0       | 150                               | 450     | 450                      | 525     | 1,400             | 1,150 | 875  | 1,400           | 1,150 | 875  | 1,150             | 900 | 650  |
| 375 | 200               | 550     |                     | 325     | 250              | 525     |                                | 50      | 200                               | 475     | 575                      | 575     | 1,425             | 1,150 | 875  | 1,425           | 1,150 | 875  | 1,150             | 925 | 650  |
| 350 | 250               | 550     |                     | 350     | 275              | 525     |                                | 150     | 250                               | 500     | 750                      | 750     | 1,425             | 1,150 | 900  | 1,425           | 1,150 | 900  | 1,150             | 925 | 675  |
| 325 | 275               | 575     |                     | 375     | 300              | 550     |                                | 200     | 275                               | 525     | 800                      | 800     | 1,425             | 1,175 | 900  | 1,425           | 1,175 | 900  | 1,175             | 950 | 700  |
| 300 | 300               | 600     | 0                   | 400     | 325              | 575     |                                | 225     | 300                               | 525     | 800                      | 800     | 1,425             | 1,175 | 900  | 1,425           | 1,175 | 900  | 1,175             | 950 | 700  |
| 275 | 325               | 600     | 125                 | 425     | 350              | 575     |                                | 275     | 325                               | 550     | 800                      | 800     | 1,450             | 1,175 | 925  | 1,450           | 1,175 | 925  | 1,175             | 950 | 700  |
| 250 | 350               | 600     | 175                 | 425     | 375              | 600     | 0                              | 275     | 350                               | 550     | 775                      | 775     | 1,450             | 1,175 | 925  | 1,450           | 1,175 | 925  | 1,175             | 950 | 725  |
| 225 | 350               | 625     | 200                 | 450     | 400              | 600     | 75                             | 300     | 400                               | 575     | 725                      | 725     | 1,450             | 1,200 | 925  | 1,450           | 1,200 | 925  | 1,200             | 975 | 725  |
| 200 | 375               | 625     | 225                 | 450     | 400              | 600     | 125                            | 325     | 425                               | 575     | 700                      | 700     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 725  |
| 175 | 400               | 650     | 250                 | 475     | 425              | 625     | 175                            | 350     | 425                               | 575     | 650                      | 650     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 750  |
| 150 | 400               | 650     | 250                 | 475     | 425              | 625     | 200                            | 350     | 400                               | 600     | 625                      | 650     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 750  |
| 125 | 400               | 650     | 275                 | 475     | 425              | 625     | 200                            | 350     | 400                               | 600     | 600                      | 650     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 750  |
| 100 | 425               | 650     | 275                 | 500     | 450              | 625     | 225                            | 375     | 400                               | 600     | 575                      | 650     | 1,450             | 1,200 | 950  | 1,450           | 1,200 | 950  | 1,200             | 975 | 750  |
| 75  | 425               | 650     | 300                 | 500     | 450              | 625     | 225                            | 375     | 425                               | 600     | 550                      | 650     | 1,475             | 1,200 | 950  | 1,475           | 1,200 | 950  | 1,200             | 975 | 750  |
| 50  | 425               | 675     | 300                 | 500     | 450              | 650     | 225                            | 375     | 425                               | 600     | 550                      | 650     | 1,475             | 1,200 | 950  | 1,475           | 1,200 | 950  | 1,200             | 975 | 750  |
| 25  | 425               | 675     | 300                 | 500     | 450              | 650     | 250                            | 375     | 425                               | 600     | 525                      | 675     | 1,475             | 1,200 | 950  | 1,475           | 1,200 | 950  | 1,200             | 975 | 750  |
| 0   | 425               | 675     | 300                 | 500     | 450              | 650     | 250                            | 375     | 425                               | 600     | 525                      | 675     | 1,475             | 1,200 | 950  | 1,475           | 1,200 | 950  | 1,200             | 975 | 750  |

 $HOB_{fs} = 24 \text{ m}$ Low  $HOB_{min} = 42 \text{ m}$ High  $HOB_{min} = 96 \text{ m}$  $HOB_{99} = HOB_{fs} + 3.5 PE_h \text{ m}$  $HOB_{98} = HOB_{fs} + 3.0 PE_h \text{ m}$  $HOB_{90} = HOB_{fs} + 1.9 PE_h \text{ m}$ 

Figure 6.6a.

# CASUALTY and DAMAGE Tables Light Guided Missile

ALFA/.5 KT

All figures in meters

| 23  | 24                            | 25                               | 26                           | 27                                           | 28                                      | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |  |
|-----|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|-----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|--|
| HOB | Mod<br>dom<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>lwug and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>Over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |  |
|     |                               |                                  |                              |                                              |                                         |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at G2 (Rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |  |
|     |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |  |
| 675 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,225                      |                          |            | 0-10        |            |                 |            | 0-550       |            |  |
| 650 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,250                      |                          |            | 0-10        |            |                 |            | 0-550       |            |  |
| 625 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,275                      |                          |            | 0-10        |            |                 |            | 0-600       |            |  |
| 600 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,275                      |                          |            | 0-15        |            |                 |            | 0-600       |            |  |
| 575 |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              | 1,300                      |                          | 0          | 0-15        |            |                 | 0          | 0-650       |            |  |
| 550 |                               |                                  |                              |                                              |                                         |                                | 0               |                              |                              | 1,325                      |                          | 0-5        | 0-20        |            |                 | 0-50       | 0-650       |            |  |
| 525 |                               |                                  |                              |                                              |                                         |                                | 125             |                              |                              | 1,325                      |                          | 0-5        | 0-25        |            |                 | 0-100      | 0-650       |            |  |
| 500 |                               |                                  |                              |                                              |                                         |                                | 200             |                              |                              | 1,325                      |                          | 0-5        | 0-30        |            |                 | 0-250      | 0-700       |            |  |
| 475 |                               |                                  |                              |                                              |                                         |                                | 250             |                              |                              | 1,325                      |                          | 0-5        | 0-45        |            |                 | 0-300      | 0-750       |            |  |
| 450 |                               |                                  |                              |                                              |                                         |                                | 300             |                              |                              | 1,350                      |                          | 0-5        | 5-60        |            |                 | 0-350      | 50-750      |            |  |
| 425 |                               |                                  |                              |                                              |                                         |                                | 325             |                              |                              | 1,350                      |                          | 0-10       | 5-75        |            |                 | 0-350      | 150-750     |            |  |
| 400 |                               |                                  |                              |                                              |                                         |                                | 375             |                              |                              | 1,350                      |                          | 0-10       | 5-100       |            |                 | 0-400      | 200-750     |            |  |
| 375 |                               |                                  |                              |                                              |                                         |                                | 400             |                              |                              | 1,350                      | 0                        | 0-15       | 10-130      |            | 0               | 0-450      | 250-800     |            |  |
| 350 |                               |                                  |                              |                                              |                                         |                                | 400             |                              |                              | 1,350                      | 0-5                      | 0-15       | 10-160      |            | 0-50            | 0-450      | 300-800     |            |  |
| 325 |                               |                                  |                              |                                              |                                         |                                | 425             | 0                            |                              | 1,350                      | 0-5                      | 0-20       | 10-200      |            | 0-150           | 0-450      | 350-800     |            |  |
| 300 |                               |                                  |                              |                                              |                                         |                                | 450             | 75                           |                              | 1,325                      | 0-5                      | 0-20       | 10-240      |            | 0-200           | 0-500      | 350-800     |            |  |
| 275 |                               |                                  |                              |                                              |                                         |                                | 475             | 150                          |                              | 1,325                      | 0-5                      | 0-25       | 15-290      |            | 0-250           | 0-500      | 400-850     |            |  |
| 250 |                               |                                  |                              |                                              |                                         |                                | 475             | 175                          |                              | 1,300                      | 0-5                      | 0-30       | 15-330      |            | 0-250           | 0-500      | 400-850     |            |  |
| 225 |                               |                                  |                              | 0                                            |                                         |                                | 500             | 225                          |                              | 1,300                      | 0-5                      | 0-35       | 20-390      |            | 0-300           | 0-550      | 400-850     |            |  |
| 200 | 0                             |                                  |                              | 50                                           |                                         |                                | 500             | 225                          |                              | 1,275                      | 0-5                      | 0-45       | 25-540      |            | 0-300           | 0-550      | 450-850     |            |  |
| 175 | 25                            |                                  |                              | 100                                          |                                         |                                | 500             | 250                          |                              | 1,250                      | 0-10                     | 0-55       | 30-660      |            | 0-350           | 0-550      | 450-850     |            |  |
| 150 | 75                            | 0                                | 0                            | 125                                          |                                         | 0                              | 525             | 275                          | 0                            | 1,250                      | 0-10                     | 5-70       | 35-840      |            | 0-350           | 50-550     | 450-850     |            |  |
| 125 | 150                           | 25                               | 50                           | 150                                          |                                         | 175                            | 525             | 275                          | 50                           | 1,225                      | 0-10                     | 5-100      | 45-1,150    |            | 0-350           | 100-550    | 450-850     |            |  |
| 100 | 175                           | 50                               | 75                           | 175                                          |                                         | 200                            | 525             | 300                          | 100                          | 1,200                      | 0-15                     | 5-120      | 55-1,350    |            | 0-350           | 150-550    | 450-850     |            |  |
| 75  | 200                           | 75                               | 100                          | 175                                          | 0                                       | 200                            | 525             | 300                          | 100                          | 1,150                      | 0-20                     | 10-145     | 70-1,750    |            | 0-350           | 150-550    | 450-850     |            |  |
| 50  | 200                           | 100                              | 100                          | 200                                          | 175                                     | 200                            | 550             | 300                          | 125                          | 1,125                      | 0-20                     | 10-175     | 85-2,100    |            | 0-350           | 150-550    | 450-850     |            |  |
| 25  | 200                           | 125                              | 100                          | 200                                          | 150                                     | 175                            | 450             | 250                          | 125                          | 1,100                      | 0-25                     | 10-250     | 120-2,900   | 0          | 0-350           | 150-550    | 450-850     | 0          |  |
| 0   | 125                           | 100                              | 75                           | 150                                          | 100                                     | 125                            | 325             | 150                          | 75                           | 1,050                      | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |  |

LGM 1

Figure 6.6a continued.

<sup>1</sup>Light Guided Missile.

CASUALTY and DAMAGE Tables  
Light Guided Missile

All figures in meters

| 1   | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22   |
|-----|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|------|
| HOB | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |      |
|     |                   |         |                     |         |                    |         |                                |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |      |
|     | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer |
| 825 |                   |         |                     |         |                    |         |                                |         |                                   |         |                          |         | 1,450             | 1,125 | 850   | 1,450           | 1,125 | 850   | 1,075             | 850   | 475  |
| 800 |                   | 0       |                     |         |                    |         |                                |         |                                   |         |                          |         | 1,475             | 1,150 | 875   | 1,475           | 1,150 | 875   | 1,100             | 875   | 525  |
| 775 |                   | 125     |                     |         |                    |         |                                |         |                                   |         |                          | 0       | 1,475             | 1,150 | 900   | 1,475           | 1,150 | 900   | 1,100             | 900   | 550  |
| 750 |                   | 225     |                     |         |                    |         |                                |         |                                   |         |                          | 150     | 1,500             | 1,175 | 925   | 1,500           | 1,175 | 925   | 1,125             | 925   | 600  |
| 725 |                   | 300     |                     |         |                    |         |                                |         |                                   |         |                          | 250     | 1,500             | 1,200 | 950   | 1,500           | 1,200 | 950   | 1,150             | 950   | 625  |
| 700 |                   | 350     |                     |         |                    |         |                                |         |                                   |         |                          | 100     | 1,525             | 1,200 | 950   | 1,525           | 1,200 | 950   | 1,150             | 950   | 650  |
| 675 |                   | 400     |                     |         |                    |         |                                |         |                                   |         |                          | 200     | 1,525             | 1,225 | 975   | 1,525           | 1,225 | 975   | 1,175             | 975   | 675  |
| 650 |                   | 450     |                     |         |                    |         |                                |         |                                   |         |                          | 275     | 1,550             | 1,225 | 1,000 | 1,550           | 1,225 | 1,000 | 1,200             | 1,000 | 700  |
| 625 |                   | 475     |                     |         |                    |         |                                |         |                                   |         |                          | 450     | 1,550             | 1,250 | 1,000 | 1,550           | 1,250 | 1,000 | 1,200             | 1,000 | 725  |
| 600 |                   | 500     |                     | 0       |                    |         |                                |         |                                   |         |                          | 375     | 1,550             | 1,250 | 1,025 | 1,550           | 1,250 | 1,025 | 1,225             | 1,025 | 750  |
| 575 | 0                 | 550     |                     | 125     |                    |         |                                |         |                                   |         |                          | 400     | 1,575             | 1,275 | 1,050 | 1,575           | 1,275 | 1,050 | 1,225             | 1,050 | 775  |
| 550 | 125               | 550     |                     | 225     | 0                  |         |                                |         |                                   |         |                          | 450     | 1,575             | 1,275 | 1,050 | 1,575           | 1,275 | 1,050 | 1,250             | 1,050 | 800  |
| 525 | 200               | 575     |                     | 275     | 75                 |         |                                |         |                                   |         |                          | 475     | 1,575             | 1,300 | 1,075 | 1,575           | 1,300 | 1,075 | 1,250             | 1,075 | 800  |
| 500 | 275               | 600     |                     | 300     | 175                |         |                                |         |                                   |         |                          | 500     | 1,600             | 1,300 | 1,075 | 1,600           | 1,300 | 1,075 | 1,250             | 1,075 | 825  |
| 475 | 300               | 625     |                     | 350     | 225                |         |                                |         |                                   |         |                          | 525     | 1,600             | 1,300 | 1,100 | 1,600           | 1,300 | 1,100 | 1,275             | 1,100 | 825  |
| 450 | 350               | 650     |                     | 375     | 275                |         |                                |         |                                   |         |                          | 550     | 1,600             | 1,325 | 1,100 | 1,600           | 1,325 | 1,100 | 1,275             | 1,100 | 850  |
| 425 | 375               | 650     | 0                   | 400     | 325                |         |                                |         |                                   |         |                          | 575     | 1,625             | 1,325 | 1,100 | 1,625           | 1,325 | 1,100 | 1,300             | 1,100 | 850  |
| 400 | 400               | 675     | 100                 | 425     | 350                |         |                                |         |                                   |         |                          | 600     | 1,625             | 1,325 | 1,125 | 1,625           | 1,325 | 1,125 | 1,300             | 1,125 | 875  |
| 375 | 425               | 700     | 175                 | 450     | 375                |         |                                |         |                                   |         |                          | 625     | 1,625             | 1,350 | 1,125 | 1,625           | 1,350 | 1,125 | 1,300             | 1,125 | 875  |
| 350 | 450               | 700     | 225                 | 475     | 400                |         |                                |         |                                   |         |                          | 650     | 1,625             | 1,350 | 1,125 | 1,625           | 1,350 | 1,125 | 1,300             | 1,125 | 900  |
| 325 | 475               | 725     | 250                 | 500     | 425                |         |                                |         |                                   |         |                          | 675     | 1,650             | 1,350 | 1,150 | 1,650           | 1,350 | 1,150 | 1,325             | 1,150 | 900  |
| 300 | 475               | 725     | 275                 | 500     | 425                |         |                                |         |                                   |         |                          | 700     | 1,650             | 1,350 | 1,150 | 1,650           | 1,350 | 1,150 | 1,325             | 1,150 | 900  |
| 275 | 500               | 725     | 300                 | 525     | 450                |         |                                |         |                                   |         |                          | 725     | 1,650             | 1,375 | 1,150 | 1,650           | 1,375 | 1,150 | 1,325             | 1,150 | 925  |
| 250 | 500               | 750     | 325                 | 525     | 475                |         |                                |         |                                   |         |                          | 750     | 1,650             | 1,375 | 1,150 | 1,650           | 1,375 | 1,150 | 1,325             | 1,150 | 925  |
| 225 | 525               | 750     | 350                 | 550     | 475                |         |                                |         |                                   |         |                          | 775     | 1,650             | 1,375 | 1,175 | 1,650           | 1,375 | 1,175 | 1,350             | 1,175 | 925  |
| 200 | 525               | 750     | 350                 | 550     | 500                |         |                                |         |                                   |         |                          | 800     | 1,650             | 1,375 | 1,175 | 1,650           | 1,375 | 1,175 | 1,350             | 1,175 | 950  |
| 175 | 550               | 775     | 375                 | 575     | 500                |         |                                |         |                                   |         |                          | 825     | 1,650             | 1,375 | 1,175 | 1,650           | 1,375 | 1,175 | 1,350             | 1,175 | 950  |
| 150 | 550               | 775     | 375                 | 575     | 500                |         |                                |         |                                   |         |                          | 850     | 1,650             | 1,375 | 1,175 | 1,650           | 1,375 | 1,175 | 1,350             | 1,175 | 950  |
| 125 | 550               | 775     | 400                 | 575     | 525                |         |                                |         |                                   |         |                          | 875     | 1,675             | 1,375 | 1,175 | 1,675           | 1,375 | 1,175 | 1,350             | 1,175 | 950  |
| 100 | 550               | 775     | 400                 | 575     | 525                |         |                                |         |                                   |         |                          | 900     | 1,675             | 1,400 | 1,175 | 1,675           | 1,400 | 1,175 | 1,350             | 1,175 | 950  |
| 75  | 550               | 775     | 400                 | 575     | 525                |         |                                |         |                                   |         |                          | 925     | 1,675             | 1,400 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,175 | 950  |
| 50  | 550               | 775     | 400                 | 600     | 525                |         |                                |         |                                   |         |                          | 950     | 1,675             | 1,400 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,200 | 950  |
| 25  | 550               | 775     | 400                 | 600     | 525                |         |                                |         |                                   |         |                          | 975     | 1,675             | 1,400 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,200 | 950  |
| 0   | 550               | 775     | 400                 | 600     | 525                |         |                                |         |                                   |         |                          | 1000    | 1,675             | 1,400 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,200 | 950  |

HOB<sub>1a</sub> = 30 mLow HOB<sub>min</sub> = 53 mHigh HOB<sub>min</sub> = 120 mHOB<sub>99</sub> = HOB<sub>1a</sub> + 3.5 PE<sub>b</sub> mHOB<sub>98</sub> = HOB<sub>1a</sub> + 3.0 PE<sub>b</sub> mHOB<sub>90</sub> = HOB<sub>1a</sub> + 1.9 PE<sub>b</sub> m

Figure 6.6b.

# CASUALTY and DAMAGE Tables Light Guided Missile

**BRAVO/1 KT**

All figures in meters

| 23  | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                               | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |  |
|-----|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|----------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|--|
| HOB | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>bridge | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |  |
|     |                               |                                  |                              |                                              |                                        |                                  | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |  |
|     |                               |                                  |                              |                                              |                                        |                                  |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |  |
| 825 |                               |                                  |                              |                                              |                                        |                                  |                 |                              |                              | 1,550                      |                          |            | 0-5         |            |                 |            | 0-500       |            |  |
| 800 |                               |                                  |                              |                                              |                                        |                                  |                 |                              |                              | 1,575                      |                          |            | 0-5         |            |                 |            | 0-550       |            |  |
| 775 |                               |                                  |                              |                                              |                                        |                                  |                 |                              |                              | 1,600                      |                          |            | 0-10        |            |                 |            | 0-550       |            |  |
| 750 |                               |                                  |                              |                                              |                                        |                                  | 0               |                              |                              | 1,625                      |                          |            | 0-10        |            |                 |            | 0-600       |            |  |
| 725 |                               |                                  |                              |                                              |                                        |                                  | 200             |                              |                              | 1,650                      |                          |            | 0-10        |            |                 |            | 0-650       |            |  |
| 700 |                               |                                  |                              |                                              |                                        |                                  | 275             |                              |                              | 1,650                      |                          |            | 0-10        |            |                 |            | 0-650       |            |  |
| 675 |                               |                                  |                              |                                              |                                        |                                  | 325             |                              |                              | 1,675                      |                          |            | 0-15        |            |                 |            | 0-700       |            |  |
| 650 |                               |                                  |                              |                                              |                                        |                                  | 375             |                              |                              | 1,675                      |                          |            | 0-20        |            |                 |            | 0-700       |            |  |
| 625 |                               |                                  |                              |                                              |                                        |                                  | 425             |                              |                              | 1,675                      |                          | 0          | 0-20        |            | 0               |            | 0-750       |            |  |
| 600 |                               |                                  |                              |                                              |                                        |                                  | 450             |                              |                              | 1,675                      |                          | 0-5        | 0-25        |            |                 | 0-50       | 0-750       |            |  |
| 575 |                               |                                  |                              |                                              |                                        |                                  | 475             |                              |                              | 1,700                      |                          | 0-5        | 0-30        |            |                 | 0-200      | 0-800       |            |  |
| 550 |                               |                                  |                              |                                              |                                        |                                  | 500             |                              |                              | 1,700                      |                          | 0-5        | 0-40        |            |                 | 0-250      | 0-800       |            |  |
| 525 |                               |                                  |                              |                                              |                                        |                                  | 525             |                              |                              | 1,700                      |                          | 0-5        | 0-50        |            |                 | 0-300      | 0-800       |            |  |
| 500 |                               |                                  |                              |                                              |                                        |                                  | 550             |                              |                              | 1,700                      |                          | 0-5        | 0-60        |            |                 | 0-350      | 0-800       |            |  |
| 475 |                               |                                  |                              |                                              |                                        |                                  | 575             |                              |                              | 1,700                      |                          | 0-10       | 0-90        |            |                 | 0-400      | 0-850       |            |  |
| 450 |                               |                                  |                              |                                              |                                        |                                  | 600             |                              |                              | 1,700                      |                          | 0-10       | 5-120       |            |                 | 0-400      | 50-850      |            |  |
| 425 |                               |                                  |                              |                                              |                                        |                                  | 625             |                              |                              | 1,700                      | 0                        | 0-15       | 10-150      |            | 0               | 0-450      | 150-900     |            |  |
| 400 |                               |                                  |                              |                                              |                                        |                                  | 625             |                              |                              | 1,700                      | 0-5                      | 0-20       | 10-200      |            | 0-50            | 0-450      | 200-900     |            |  |
| 375 |                               |                                  |                              |                                              |                                        |                                  | 650             |                              |                              | 1,675                      | 0-5                      | 0-25       | 15-260      |            | 0-150           | 0-500      | 250-900     |            |  |
| 350 |                               |                                  |                              |                                              |                                        |                                  | 675             | 0                            |                              | 1,675                      | 0-5                      | 0-30       | 15-320      |            | 0-200           | 0-500      | 300-900     |            |  |
| 325 |                               |                                  |                              |                                              |                                        |                                  | 675             | 125                          |                              | 1,650                      | 0-5                      | 0-35       | 20-400      |            | 0-250           | 0-500      | 350-900     |            |  |
| 300 |                               |                                  |                              | 0                                            |                                        |                                  | 675             | 175                          |                              | 1,650                      | 0-5                      | 5-40       | 20-480      |            | 0-300           | 50-550     | 350-950     |            |  |
| 275 |                               |                                  |                              | 25                                           |                                        |                                  | 700             | 200                          |                              | 1,625                      | 0-10                     | 5-50       | 25-580      |            | 0-300           | 150-550    | 400-950     |            |  |
| 250 |                               |                                  |                              | 75                                           |                                        |                                  | 700             | 250                          |                              | 1,600                      | 0-10                     | 5-55       | 30-660      |            | 0-350           | 200-550    | 400-950     |            |  |
| 225 | 0                             |                                  |                              | 125                                          |                                        |                                  | 725             | 250                          |                              | 1,600                      | 0-10                     | 5-65       | 35-780      |            | 0-350           | 200-600    | 400-950     |            |  |
| 200 | 50                            |                                  | 0                            | 150                                          |                                        | 0                                | 725             | 275                          | 0                            | 1,575                      | 0-10                     | 5-90       | 50-1,080    |            | 0-350           | 250-600    | 450-950     |            |  |
| 175 | 150                           | 0                                | 25                           | 175                                          |                                        | 250                              | 725             | 300                          | 50                           | 1,550                      | 0-15                     | 5-110      | 60-1,320    |            | 0-400           | 250-600    | 450-950     |            |  |
| 150 | 200                           | 25                               | 75                           | 200                                          |                                        | 250                              | 725             | 300                          | 100                          | 1,525                      | 0-15                     | 10-140     | 70-1,680    |            | 0-400           | 300-600    | 450-950     |            |  |
| 125 | 225                           | 50                               | 100                          | 225                                          |                                        | 250                              | 750             | 325                          | 125                          | 1,500                      | 0-20                     | 10-185     | 90-2,220    |            | 0-400           | 300-600    | 450-950     |            |  |
| 100 | 250                           | 100                              | 125                          | 225                                          | 0                                      | 275                              | 750             | 325                          | 150                          | 1,475                      | 0-25                     | 10-225     | 110-2,700   |            | 0-400           | 300-600    | 450-950     |            |  |
| 75  | 250                           | 150                              | 125                          | 250                                          | 225                                    | 275                              | 750             | 325                          | 175                          | 1,450                      | 0-35                     | 15-290     | 140-3,500   |            | 0-400           | 300-600    | 450-950     |            |  |
| 50  | 250                           | 150                              | 150                          | 250                                          | 250                                    | 275                              | 725             | 325                          | 175                          | 1,400                      | 5-40                     | 15-350     | 170-4,200   | 0          | 50-400          | 300-600    | 450-950     | 0          |  |
| 25  | 250                           | 150                              | 150                          | 250                                          | 225                                    | 250                              | 575             | 350                          | 150                          | 1,375                      | FALLOUT COVERS           |            |             |            |                 |            |             |            |  |
| 0   | 175                           | 125                              | 100                          | 200                                          | 150                                    | 200                              | 450             | 250                          | 125                          | 1,325                      |                          |            |             |            |                 |            |             |            |  |

Figure 6.6b continued.

LGM 1

<sup>1</sup>Light Guided Missile.

CASUALTY and DAMAGE Tables  
Light Guided Missile

All figures in meters

| 1   | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22   |
|-----|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|------|
| HOB | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |      |
|     |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |      |
|     | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer |
| 900 |                   | 0       |                     |         |                    |         |                                 |         |                                   |         |                          |         | 1,975             | 1,300 | 950   | 1,525           | 1,200 | 950   | 1,125             | 800   | 325  |
| 875 |                   | 175     |                     |         |                    |         |                                 |         |                                   |         |                          | 0       | 1,975             | 1,300 | 950   | 1,525           | 1,200 | 950   | 1,150             | 825   | 400  |
| 850 |                   | 275     |                     |         |                    |         |                                 |         |                                   |         |                          | 175     | 2,000             | 1,325 | 975   | 1,550           | 1,225 | 975   | 1,150             | 850   | 450  |
| 825 |                   | 350     |                     |         |                    |         |                                 |         |                                   | 0       |                          | 275     | 2,000             | 1,350 | 1,000 | 1,550           | 1,250 | 1,000 | 1,175             | 875   | 500  |
| 800 |                   | 400     |                     |         |                    |         |                                 |         |                                   | 100     |                          | 350     | 2,025             | 1,350 | 1,025 | 1,575           | 1,275 | 1,025 | 1,200             | 900   | 525  |
| 775 |                   | 450     |                     |         |                    |         |                                 |         |                                   | 225     |                          | 400     | 2,025             | 1,375 | 1,050 | 1,575           | 1,275 | 1,050 | 1,225             | 925   | 575  |
| 750 |                   | 475     |                     |         |                    |         |                                 |         |                                   | 300     |                          | 450     | 2,025             | 1,400 | 1,075 | 1,600           | 1,300 | 1,075 | 1,225             | 950   | 600  |
| 725 |                   | 525     |                     |         |                    |         |                                 |         |                                   | 350     |                          | 475     | 2,050             | 1,400 | 1,075 | 1,600           | 1,300 | 1,075 | 1,250             | 975   | 625  |
| 700 |                   | 550     |                     | 0       |                    |         |                                 |         |                                   | 400     |                          | 525     | 2,050             | 1,400 | 1,100 | 1,625           | 1,325 | 1,100 | 1,250             | 1,000 | 650  |
| 675 |                   | 575     |                     | 125     |                    |         |                                 |         |                                   | 450     | 0                        | 550     | 2,050             | 1,425 | 1,100 | 1,625           | 1,325 | 1,100 | 1,275             | 1,000 | 675  |
| 650 |                   | 600     |                     | 225     |                    |         |                                 |         |                                   | 475     | 300                      | 575     | 2,075             | 1,425 | 1,125 | 1,650           | 1,350 | 1,125 | 1,275             | 1,025 | 700  |
| 625 | 0                 | 625     |                     | 275     | 0                  |         |                                 |         |                                   | 500     | 375                      | 600     | 2,075             | 1,450 | 1,150 | 1,650           | 1,350 | 1,150 | 1,300             | 1,050 | 725  |
| 600 | 150               | 650     |                     | 325     | 150                |         |                                 |         | 0                                 | 525     | 450                      | 625     | 2,075             | 1,450 | 1,150 | 1,650           | 1,375 | 1,150 | 1,300             | 1,050 | 750  |
| 575 | 250               | 675     |                     | 375     | 225                |         |                                 |         | 150                               | 550     | 525                      | 650     | 2,100             | 1,475 | 1,175 | 1,675           | 1,375 | 1,175 | 1,325             | 1,075 | 775  |
| 550 | 300               | 700     |                     | 400     | 275                |         |                                 |         | 225                               | 575     | 600                      | 675     | 2,100             | 1,475 | 1,175 | 1,675           | 1,400 | 1,175 | 1,325             | 1,075 | 800  |
| 525 | 325               | 725     |                     | 450     | 325                |         |                                 |         | 275                               | 600     | 750                      | 750     | 2,100             | 1,500 | 1,200 | 1,675           | 1,400 | 1,200 | 1,350             | 1,100 | 800  |
| 500 | 375               | 725     |                     | 475     | 375                |         |                                 |         | 200                               | 325     | 625                      | 900     | 2,100             | 1,500 | 1,200 | 1,700           | 1,400 | 1,200 | 1,350             | 1,100 | 825  |
| 475 | 400               | 750     | 0                   | 500     | 400                |         |                                 |         | 250                               | 350     | 650                      | 1,075   | 2,125             | 1,500 | 1,200 | 1,700           | 1,425 | 1,200 | 1,350             | 1,125 | 825  |
| 450 | 425               | 775     | 125                 | 525     | 425                |         |                                 |         | 275                               | 400     | 675                      | 1,175   | 2,125             | 1,500 | 1,225 | 1,700           | 1,425 | 1,225 | 1,375             | 1,125 | 850  |
| 425 | 450               | 775     | 200                 | 550     | 450                |         |                                 |         | 325                               | 425     | 675                      | 1,175   | 2,125             | 1,525 | 1,225 | 1,700           | 1,425 | 1,225 | 1,375             | 1,125 | 850  |
| 400 | 475               | 800     | 250                 | 550     | 475                |         |                                 |         | 350                               | 450     | 700                      | 1,200   | 2,125             | 1,525 | 1,250 | 1,725           | 1,450 | 1,250 | 1,375             | 1,150 | 875  |
| 375 | 500               | 800     | 275                 | 575     | 500                |         |                                 |         | 375                               | 625     | 700                      | 1,200   | 2,150             | 1,525 | 1,250 | 1,725           | 1,450 | 1,250 | 1,400             | 1,150 | 875  |
| 350 | 525               | 825     | 300                 | 600     | 500                |         |                                 |         | 400                               | 675     | 725                      | 1,175   | 2,150             | 1,525 | 1,250 | 1,725           | 1,450 | 1,250 | 1,400             | 1,150 | 900  |
| 325 | 525               | 825     | 325                 | 600     | 525                |         |                                 |         | 425                               | 675     | 725                      | 1,175   | 2,150             | 1,550 | 1,250 | 1,725           | 1,450 | 1,250 | 1,400             | 1,175 | 900  |
| 300 | 550               | 825     | 350                 | 625     | 550                |         |                                 |         | 450                               | 675     | 750                      | 1,125   | 2,150             | 1,550 | 1,275 | 1,725           | 1,475 | 1,275 | 1,400             | 1,175 | 900  |
| 275 | 550               | 850     | 375                 | 625     | 550                |         |                                 |         | 450                               | 675     | 750                      | 1,100   | 2,150             | 1,550 | 1,275 | 1,750           | 1,475 | 1,275 | 1,425             | 1,175 | 925  |
| 250 | 575               | 850     | 400                 | 625     | 575                |         |                                 |         | 475                               | 650     | 750                      | 1,050   | 2,150             | 1,550 | 1,275 | 1,750           | 1,475 | 1,275 | 1,425             | 1,175 | 925  |
| 225 | 575               | 850     | 400                 | 650     | 575                |         |                                 |         | 475                               | 650     | 775                      | 1,025   | 2,150             | 1,550 | 1,275 | 1,750           | 1,475 | 1,275 | 1,425             | 1,200 | 925  |
| 200 | 575               | 875     | 425                 | 650     | 600                |         |                                 |         | 500                               | 625     | 775                      | 975     | 2,150             | 1,550 | 1,275 | 1,750           | 1,475 | 1,275 | 1,425             | 1,200 | 950  |
| 175 | 600               | 875     | 425                 | 675     | 600                |         |                                 |         | 500                               | 600     | 775                      | 950     | 2,175             | 1,575 | 1,300 | 1,750           | 1,475 | 1,300 | 1,425             | 1,200 | 950  |
| 150 | 600               | 875     | 450                 | 675     | 600                |         |                                 |         | 525                               | 575     | 800                      | 925     | 2,175             | 1,575 | 1,300 | 1,750           | 1,500 | 1,300 | 1,425             | 1,200 | 950  |
| 125 | 600               | 875     | 450                 | 675     | 600                |         |                                 |         | 525                               | 575     | 800                      | 900     | 2,175             | 1,575 | 1,300 | 1,750           | 1,500 | 1,300 | 1,425             | 1,200 | 950  |
| 100 | 600               | 875     | 450                 | 675     | 625                |         |                                 |         | 525                               | 575     | 800                      | 850     | 2,175             | 1,575 | 1,300 | 1,750           | 1,500 | 1,300 | 1,425             | 1,200 | 950  |
| 75  | 625               | 875     | 450                 | 675     | 625                |         |                                 |         | 525                               | 600     | 800                      | 825     | 2,175             | 1,575 | 1,300 | 1,750           | 1,500 | 1,300 | 1,450             | 1,200 | 950  |
| 50  | 625               | 900     | 450                 | 675     | 625                |         |                                 |         | 525                               | 600     | 800                      | 800     | 2,025             | 1,550 | 1,300 | 1,750           | 1,500 | 1,300 | 1,450             | 1,200 | 950  |
| 25  | 625               | 900     | 475                 | 675     | 625                |         |                                 |         | 375                               | 525     | 600                      | 775     | 1,900             | 1,525 | 1,300 | 1,750           | 1,500 | 1,300 | 1,450             | 1,200 | 950  |
| 0   | 625               | 900     | 475                 | 675     | 625                |         |                                 |         | 375                               | 525     | 600                      | 775     | 1,750             | 1,500 | 1,300 | 1,750           | 1,500 | 1,300 | 1,450             | 1,200 | 950  |

HOB<sub>ts</sub> = 38 m

Low HOB<sub>min</sub> = 67 m

High HOB<sub>min</sub> = 152 m

HOB<sub>99</sub> = HOB<sub>ts</sub> + 3.5 PE<sub>h</sub> m

HOB<sub>98</sub> = HOB<sub>ts</sub> + 3.0 PE<sub>h</sub> m

HOB<sub>90</sub> = HOB<sub>ts</sub> + 1.9 PE<sub>h</sub> m

Figure 6.6c.

# CASUALTY and DAMAGE Tables Light Guided Missile

CHARLIE/2 KT

All figures in meters

| 23  | 24                                | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |  |
|-----|-----------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|--|
| HOB | Mod<br>dam<br>wheeled<br>vehicles | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |  |
|     |                                   |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |  |
|     |                                   |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |  |
| 900 |                                   |                                  |                              |                                              |                                        |                                | 550             |                              |                              | 2,075                      |                          |            | 0-5         |            |                 |            | 0-500       |            |  |
| 875 |                                   |                                  |                              |                                              |                                        |                                | 575             |                              |                              | 2,100                      |                          |            | 0-10        |            |                 |            | 0-600       |            |  |
| 850 |                                   |                                  |                              |                                              |                                        |                                | 625             |                              |                              | 2,100                      |                          |            | 0-10        |            |                 |            | 0-650       |            |  |
| 825 |                                   |                                  |                              |                                              |                                        |                                | 650             |                              |                              | 2,100                      |                          |            | 0-10        |            |                 |            | 0-700       |            |  |
| 800 |                                   |                                  |                              |                                              |                                        |                                | 675             |                              |                              | 2,100                      |                          |            | 0-10        |            |                 |            | 0-700       |            |  |
| 775 |                                   |                                  |                              |                                              |                                        |                                | 700             |                              |                              | 2,125                      |                          |            | 0-15        |            |                 |            | 0-750       |            |  |
| 750 |                                   |                                  |                              |                                              |                                        |                                | 725             |                              |                              | 2,125                      |                          |            | 0-15        |            |                 |            | 0-750       |            |  |
| 725 |                                   |                                  |                              |                                              |                                        |                                | 750             |                              |                              | 2,125                      |                          | 0          | 0-20        |            |                 | 0          | 0-800       |            |  |
| 700 |                                   |                                  |                              |                                              |                                        |                                | 775             |                              |                              | 2,125                      |                          | 0-5        | 0-20        |            |                 | 0-50       | 0-800       |            |  |
| 675 |                                   |                                  |                              |                                              |                                        |                                | 800             |                              |                              | 2,150                      |                          | 0-5        | 0-25        |            |                 | 0-200      | 0-850       |            |  |
| 650 |                                   |                                  |                              |                                              |                                        |                                | 825             |                              |                              | 2,150                      |                          | 0-5        | 0-35        |            |                 | 0-300      | 0-850       |            |  |
| 625 |                                   |                                  |                              |                                              |                                        |                                | 850             |                              |                              | 2,150                      |                          | 0-5        | 0-40        |            |                 | 0-350      | 0-850       |            |  |
| 600 |                                   |                                  |                              |                                              |                                        |                                | 850             |                              |                              | 2,150                      |                          | 0-5        | 5-50        |            |                 | 0-400      | 50-900      |            |  |
| 575 |                                   |                                  |                              |                                              |                                        |                                | 875             |                              |                              | 2,150                      |                          | 0-5        | 5-60        |            |                 | 0-400      | 200-900     |            |  |
| 550 |                                   |                                  |                              |                                              |                                        |                                | 900             |                              |                              | 2,150                      |                          | 0-10       | 5-75        |            |                 | 0-450      | 250-900     |            |  |
| 525 |                                   |                                  |                              |                                              |                                        |                                | 900             |                              |                              | 2,125                      | 0                        | 0-10       | 5-100       |            | 0               | 0-450      | 300-950     |            |  |
| 500 |                                   |                                  |                              |                                              |                                        |                                | 925             |                              |                              | 2,125                      | 0-5                      | 0-10       | 5-120       |            | 0-50            | 0-500      | 350-950     |            |  |
| 475 |                                   |                                  |                              |                                              |                                        |                                | 925             | 0                            |                              | 2,125                      | 0-5                      | 0-15       | 10-180      |            | 0-150           | 0-550      | 400-950     |            |  |
| 450 |                                   |                                  |                              |                                              |                                        |                                | 950             | 150                          |                              | 2,100                      | 0-5                      | 0-20       | 10-230      |            | 0-250           | 0-550      | 400-1,000   |            |  |
| 425 |                                   |                                  |                              |                                              |                                        |                                | 950             | 200                          |                              | 2,100                      | 0-5                      | 0-25       | 15-300      |            | 0-300           | 0-600      | 450-1,000   |            |  |
| 400 |                                   |                                  |                              |                                              |                                        |                                | 975             | 250                          |                              | 2,075                      | 0-5                      | 0-35       | 20-400      |            | 0-300           | 0-600      | 450-1,000   |            |  |
| 375 |                                   |                                  |                              | 0                                            |                                        |                                | 975             | 300                          |                              | 2,075                      | 0-5                      | 0-50       | 20-520      |            | 0-350           | 0-600      | 500-1,000   |            |  |
| 350 |                                   |                                  |                              | 25                                           |                                        |                                | 1,000           | 325                          |                              | 2,050                      | 0-10                     | 5-60       | 25-640      |            | 0-400           | 50-650     | 500-1,000   |            |  |
| 325 |                                   |                                  |                              | 75                                           |                                        |                                | 1,000           | 350                          |                              | 2,025                      | 0-10                     | 5-70       | 35-800      |            | 0-400           | 150-650    | 500-1,000   |            |  |
| 300 | 0                                 |                                  |                              | 125                                          |                                        |                                | 1,000           | 375                          |                              | 2,025                      | 0-10                     | 5-80       | 40-940      |            | 0-400           | 200-650    | 550-1,050   |            |  |
| 275 | 25                                |                                  |                              | 175                                          |                                        | 0                              | 1,025           | 375                          | 0                            | 2,000                      | 0-15                     | 5-100      | 50-1,140    |            | 0-450           | 250-650    | 550-1,050   |            |  |
| 250 | 100                               |                                  | 0                            | 200                                          |                                        | 250                            | 1,025           | 400                          | 50                           | 1,975                      | 0-15                     | 5-110      | 60-1,320    |            | 0-450           | 250-700    | 550-1,050   |            |  |
| 225 | 150                               | 0                                | 25                           | 250                                          |                                        | 300                            | 1,025           | 425                          | 125                          | 1,950                      | 0-15                     | 10-130     | 70-1,560    |            | 0-450           | 300-700    | 600-1,050   |            |  |
| 200 | 250                               | 25                               | 75                           | 250                                          |                                        | 325                            | 1,025           | 425                          | 150                          | 1,925                      | 0-20                     | 10-180     | 90-2,160    |            | 0-500           | 300-700    | 600-1,050   |            |  |
| 175 | 275                               | 50                               | 100                          | 275                                          |                                        | 325                            | 1,025           | 450                          | 175                          | 1,900                      | 0-25                     | 10-220     | 110-2,700   |            | 0-500           | 350-700    | 600-1,050   |            |  |
| 150 | 300                               | 100                              | 125                          | 300                                          |                                        | 350                            | 1,050           | 450                          | 200                          | 1,875                      | 0-35                     | 15-280     | 140-3,400   |            | 0-500           | 350-700    | 600-1,050   |            |  |
| 125 | 325                               | 125                              | 150                          | 300                                          | 0                                      | 350                            | 1,050           | 450                          | 225                          | 1,850                      | 0-40                     | 15-370     | 180-4,500   |            | 0-500           | 350-700    | 600-1,050   |            |  |
| 100 | 350                               | 175                              | 175                          | 325                                          | 275                                    | 350                            | 1,050           | 475                          | 225                          | 1,825                      | 5-50                     | 20-450     | 220-5,400   |            | 50-500          | 350-700    | 600-1,050   |            |  |
| 75  | 350                               | 200                              | 175                          | 325                                          | 300                                    | 375                            | 1,050           | 475                          | 250                          | 1,775                      | 5-70                     | 25-580     | 280-7,000   | 0          | 100-500         | 350-700    | 600-1,050   | 0          |  |
| 50  | 350                               | 200                              | 200                          | 325                                          | 300                                    | 375                            | 925             | 425                          | 225                          | 1,750                      | 5-80                     | 30-700     | 340-8,400   | 0-5        | 100-500         | 350-700    | 600-1,050   | 0-50       |  |
| 25  | 300                               | 200                              | 175                          | 325                                          | 275                                    | 350                            | 775             | 350                          | 200                          | 1,725                      | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |  |
| 0   | 225                               | 150                              | 125                          | 275                                          | 250                                    | 300                            | 625             | 300                          | 150                          | 1,675                      |                          |            |             |            |                 |            |             |            |  |

LGM 1

Figure 6.6c continued.

<sup>1</sup>Light Guided Missile.

CASUALTY and DAMAGE Tables  
Light Guided Missile

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,050 |                   | 0       |                     |         |                    |         |                                 |         |                                   |         |                          |         | 3,025             | 2,150 | 1,700 | 1,750           | 1,350 | 875   | 1,225             | 875   | 350   |
| 1,025 |                   | 225     |                     |         |                    |         |                                 |         |                                   |         |                          | 0       | 3,025             | 2,150 | 1,700 | 1,750           | 1,350 | 900   | 1,250             | 900   | 425   |
| 1,000 |                   | 325     |                     |         |                    | 0       |                                 |         |                                   |         |                          | 175     | 3,025             | 2,150 | 1,725 | 1,775           | 1,375 | 925   | 1,275             | 925   | 475   |
| 975   |                   | 400     |                     |         |                    | 150     |                                 |         |                                   |         |                          | 275     | 3,025             | 2,175 | 1,750 | 1,775           | 1,400 | 950   | 1,300             | 950   | 525   |
| 950   |                   | 450     |                     |         |                    | 250     |                                 |         |                                   | 0       |                          | 350     | 3,050             | 2,175 | 1,750 | 1,800           | 1,400 | 1,000 | 1,300             | 975   | 575   |
| 925   |                   | 500     |                     |         |                    | 350     |                                 |         |                                   | 200     |                          | 425     | 3,050             | 2,200 | 1,775 | 1,800           | 1,425 | 1,000 | 1,325             | 1,000 | 600   |
| 900   |                   | 550     |                     |         |                    | 400     |                                 |         |                                   | 300     | 0                        | 475     | 3,050             | 2,200 | 1,775 | 1,825           | 1,450 | 1,025 | 1,350             | 1,025 | 650   |
| 875   |                   | 575     |                     |         |                    | 450     |                                 |         |                                   | 350     | 650                      | 650     | 3,075             | 2,225 | 1,800 | 1,825           | 1,450 | 1,050 | 1,350             | 1,050 | 675   |
| 850   |                   | 625     |                     |         |                    | 500     |                                 |         |                                   | 400     | 750                      | 750     | 3,075             | 2,225 | 1,800 | 1,850           | 1,475 | 1,075 | 1,375             | 1,075 | 700   |
| 825   |                   | 650     |                     | 0       |                    | 550     |                                 |         |                                   | 450     | 850                      | 850     | 3,075             | 2,225 | 1,800 | 1,850           | 1,500 | 1,100 | 1,400             | 1,075 | 725   |
| 800   | 0                 | 675     |                     | 200     |                    | 575     |                                 |         |                                   | 500     | 925                      | 925     | 3,100             | 2,250 | 1,825 | 1,875           | 1,500 | 1,100 | 1,400             | 1,100 | 750   |
| 775   | 175               | 700     |                     | 275     |                    | 600     |                                 |         |                                   | 550     | 975                      | 975     | 3,100             | 2,250 | 1,825 | 1,875           | 1,525 | 1,125 | 1,425             | 1,125 | 800   |
| 750   | 275               | 725     |                     | 350     | 0                  | 650     |                                 |         |                                   | 775     | 1,050                    | 1,050   | 3,100             | 2,275 | 1,850 | 1,900           | 1,525 | 1,150 | 1,425             | 1,150 | 800   |
| 725   | 325               | 750     |                     | 400     | 175                | 675     |                                 |         | 0                                 | 600     | 1,150                    | 1,150   | 3,100             | 2,275 | 1,850 | 1,900           | 1,550 | 1,150 | 1,550             | 1,150 | 825   |
| 700   | 375               | 775     |                     | 425     | 250                | 700     |                                 |         | 150                               | 625     | 1,300                    | 1,300   | 3,125             | 2,275 | 1,875 | 1,900           | 1,550 | 1,175 | 1,700             | 1,175 | 850   |
| 675   | 425               | 800     |                     | 475     | 300                | 725     |                                 |         | 225                               | 650     | 1,500                    | 1,500   | 3,125             | 2,275 | 1,875 | 1,925           | 1,550 | 1,200 | 1,725             | 1,175 | 875   |
| 650   | 450               | 825     |                     | 500     | 350                | 750     |                                 | 0       | 300                               | 675     | 1,600                    | 1,600   | 3,125             | 2,300 | 1,875 | 1,925           | 1,575 | 1,200 | 1,725             | 1,200 | 900   |
| 625   | 500               | 850     | 0                   | 525     | 400                | 750     |                                 | 175     | 350                               | 700     | 1,625                    | 1,625   | 3,125             | 2,300 | 1,900 | 1,925           | 1,575 | 1,225 | 1,725             | 1,200 | 925   |
| 600   | 525               | 850     | 150                 | 550     | 450                | 775     |                                 | 250     | 375                               | 725     | 1,650                    | 1,650   | 3,125             | 2,300 | 1,900 | 1,950           | 1,600 | 1,225 | 1,725             | 1,225 | 925   |
| 575   | 550               | 875     | 225                 | 575     | 475                | 800     |                                 | 300     | 425                               | 750     | 1,650                    | 1,650   | 3,150             | 2,300 | 1,900 | 1,950           | 1,600 | 1,250 | 1,725             | 1,225 | 950   |
| 550   | 575               | 900     | 300                 | 600     | 500                | 825     |                                 | 350     | 450                               | 775     | 1,625                    | 1,625   | 3,150             | 2,325 | 1,900 | 1,950           | 1,600 | 1,250 | 1,750             | 1,250 | 950   |
| 525   | 600               | 900     | 325                 | 625     | 525                | 825     |                                 | 375     | 525                               | 775     | 1,625                    | 1,625   | 3,150             | 2,325 | 1,925 | 1,950           | 1,625 | 1,275 | 1,725             | 1,250 | 975   |
| 500   | 625               | 925     | 375                 | 650     | 550                | 850     |                                 | 425     | 825                               | 825     | 1,600                    | 1,600   | 3,150             | 2,325 | 1,925 | 1,975           | 1,625 | 1,275 | 1,700             | 1,275 | 975   |
| 475   | 650               | 925     | 400                 | 675     | 575                | 875     | 0                               | 450     | 875                               | 875     | 1,550                    | 1,550   | 3,150             | 2,325 | 1,925 | 1,975           | 1,625 | 1,275 | 1,675             | 1,275 | 1,000 |
| 450   | 650               | 950     | 425                 | 700     | 600                | 875     | 100                             | 475     | 925                               | 925     | 1,525                    | 1,525   | 3,150             | 2,350 | 1,950 | 1,975           | 1,650 | 1,300 | 1,650             | 1,300 | 1,000 |
| 425   | 675               | 950     | 450                 | 700     | 600                | 875     | 175                             | 500     | 925                               | 925     | 1,475                    | 1,475   | 3,175             | 2,350 | 1,950 | 2,000           | 1,650 | 1,300 | 1,625             | 1,300 | 1,025 |
| 400   | 700               | 975     | 475                 | 725     | 625                | 900     | 225                             | 525     | 925                               | 925     | 1,450                    | 1,450   | 3,175             | 2,350 | 1,950 | 2,000           | 1,650 | 1,300 | 1,600             | 1,300 | 1,025 |
| 375   | 700               | 975     | 500                 | 725     | 650                | 900     | 275                             | 525     | 925                               | 925     | 1,425                    | 1,425   | 3,175             | 2,350 | 1,950 | 2,000           | 1,650 | 1,325 | 1,575             | 1,300 | 1,050 |
| 350   | 725               | 975     | 500                 | 750     | 650                | 925     | 300                             | 550     | 900                               | 900     | 1,400                    | 1,400   | 3,175             | 2,350 | 1,950 | 2,000           | 1,675 | 1,325 | 1,575             | 1,325 | 1,050 |
| 325   | 725               | 1,000   | 525                 | 750     | 675                | 925     | 325                             | 575     | 875                               | 875     | 1,375                    | 1,375   | 3,175             | 2,350 | 1,975 | 2,000           | 1,675 | 1,325 | 1,575             | 1,325 | 1,050 |
| 300   | 750               | 1,000   | 550                 | 775     | 675                | 950     | 350                             | 575     | 850                               | 900     | 1,350                    | 1,350   | 3,175             | 2,350 | 1,975 | 2,000           | 1,675 | 1,350 | 1,600             | 1,325 | 1,075 |
| 275   | 750               | 1,000   | 550                 | 775     | 700                | 950     | 375                             | 600     | 850                               | 900     | 1,300                    | 1,300   | 3,175             | 2,375 | 1,975 | 2,025           | 1,675 | 1,350 | 1,600             | 1,325 | 1,075 |
| 250   | 750               | 1,025   | 575                 | 775     | 700                | 950     | 400                             | 600     | 825                               | 900     | 1,275                    | 1,275   | 3,175             | 2,375 | 1,975 | 2,025           | 1,675 | 1,350 | 1,600             | 1,350 | 1,075 |
| 225   | 775               | 1,025   | 575                 | 800     | 700                | 950     | 400                             | 600     | 800                               | 925     | 1,250                    | 1,250   | 3,175             | 2,375 | 1,975 | 2,025           | 1,700 | 1,350 | 1,600             | 1,350 | 1,075 |
| 200   | 775               | 1,025   | 600                 | 800     | 725                | 975     | 425                             | 625     | 800                               | 925     | 1,225                    | 1,225   | 3,175             | 2,375 | 1,975 | 2,025           | 1,700 | 1,350 | 1,600             | 1,350 | 1,100 |
| 175   | 775               | 1,025   | 600                 | 800     | 725                | 975     | 425                             | 625     | 775                               | 925     | 1,200                    | 1,200   | 3,200             | 2,375 | 1,975 | 2,025           | 1,700 | 1,350 | 1,600             | 1,350 | 1,100 |
| 150   | 775               | 1,025   | 600                 | 800     | 725                | 975     | 425                             | 625     | 750                               | 925     | 1,175                    | 1,175   | 3,200             | 2,375 | 2,000 | 2,025           | 1,700 | 1,350 | 1,600             | 1,350 | 1,100 |
| 125   | 775               | 1,050   | 600                 | 800     | 725                | 975     | 450                             | 650     | 750                               | 925     | 1,150                    | 1,150   | 3,200             | 2,375 | 2,000 | 2,025           | 1,700 | 1,375 | 1,625             | 1,350 | 1,100 |
| 100   | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 725                               | 950     | 1,125                    | 1,125   | 3,150             | 2,375 | 1,950 | 2,025           | 1,700 | 1,375 | 1,625             | 1,350 | 1,100 |
| 75    | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 700                               | 950     | 1,125                    | 1,125   | 2,800             | 2,200 | 1,800 | 2,025           | 1,700 | 1,375 | 1,625             | 1,350 | 1,100 |
| 50    | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 725                               | 950     | 1,075                    | 1,075   | 2,550             | 2,025 | 1,650 | 2,025           | 1,700 | 1,375 | 1,625             | 1,375 | 1,100 |
| 25    | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 725                               | 950     | 1,075                    | 1,075   | 2,275             | 1,850 | 1,525 | 2,025           | 1,700 | 1,375 | 1,625             | 1,375 | 1,100 |
| 0     | 800               | 1,050   | 625                 | 825     | 750                | 975     | 450                             | 650     | 725                               | 950     | 1,050                    | 1,050   | 2,125             | 1,700 | 1,375 | 2,025           | 1,700 | 1,375 | 1,625             | 1,375 | 1,100 |

HOB<sub>fa</sub> = 52 mLow HOB<sub>min</sub> = 91 mHigh HOB<sub>min</sub> = 206 mHOB<sub>99</sub> = HOB<sub>fa</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>fa</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>fa</sub> + 1.9 PE<sub>h</sub> m

Figure 6.6d.



**CASUALTY and DAMAGE Tables**  
**Light Guided Missile**

**DELTA/5 KT**

*All figures in meters*

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d Degree Burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 1,050 |                               |                                  |                              |                                              |                                        |                                | 1,175           |                              |                              | 2,875                      |                          |            | 0-5         |            |                 |            | 0-500       |            |
| 1,025 |                               |                                  |                              |                                              |                                        |                                | 1,200           |                              |                              | 2,875                      |                          |            | 0-5         |            |                 |            | 0-550       |            |
| 1,000 |                               |                                  |                              |                                              |                                        |                                | 1,225           |                              |                              | 2,875                      |                          |            | 0-10        |            |                 |            | 0-600       |            |
| 975   |                               |                                  |                              |                                              |                                        |                                | 1,225           |                              |                              | 2,900                      |                          |            | 0-10        |            |                 |            | 0-600       |            |
| 950   |                               |                                  |                              |                                              |                                        |                                | 1,250           |                              |                              | 2,900                      |                          |            | 0-10        |            |                 |            | 0-650       |            |
| 925   |                               |                                  |                              |                                              |                                        |                                | 1,275           |                              |                              | 2,900                      |                          |            | 0-10        |            |                 |            | 0-700       |            |
| 900   |                               |                                  |                              |                                              |                                        |                                | 1,300           |                              |                              | 2,900                      |                          |            | 0-15        |            |                 |            | 0-750       |            |
| 875   |                               |                                  |                              |                                              |                                        |                                | 1,300           |                              |                              | 2,925                      |                          |            | 0-15        |            |                 |            | 0-750       |            |
| 850   |                               |                                  |                              |                                              |                                        |                                | 1,325           |                              |                              | 2,925                      |                          |            | 0-20        |            |                 |            | 0-800       |            |
| 825   |                               |                                  |                              |                                              |                                        |                                | 1,350           |                              |                              | 2,925                      |                          | 0          | 0-20        |            | 0               |            | 0-800       |            |
| 800   |                               |                                  |                              |                                              |                                        |                                | 1,350           |                              |                              | 2,925                      |                          | 0-5        | 0-25        |            |                 | 0-50       | 0-850       |            |
| 775   |                               |                                  |                              |                                              |                                        |                                | 1,375           |                              |                              | 2,900                      |                          | 0-5        | 0-30        |            |                 | 0-200      | 0-850       |            |
| 750   |                               |                                  |                              |                                              |                                        |                                | 1,375           | 0                            |                              | 2,900                      |                          | 0-5        | 0-35        |            |                 | 0-300      | 0-900       |            |
| 725   |                               |                                  |                              |                                              |                                        |                                | 1,400           | 75                           |                              | 2,900                      |                          | 0-5        | 0-45        |            |                 | 0-350      | 0-900       |            |
| 700   |                               |                                  |                              |                                              |                                        |                                | 1,400           | 200                          |                              | 2,900                      |                          | 0-5        | 5-50        |            |                 | 0-400      | 50-950      |            |
| 675   |                               |                                  |                              |                                              |                                        |                                | 1,425           | 275                          |                              | 2,875                      |                          | 0-10       | 5-65        |            |                 | 0-450      | 200-950     |            |
| 650   |                               |                                  |                              |                                              |                                        |                                | 1,425           | 325                          |                              | 2,875                      |                          | 0-10       | 5-80        |            |                 | 0-500      | 300-950     |            |
| 625   |                               |                                  |                              |                                              |                                        |                                | 1,450           | 375                          |                              | 2,850                      |                          | 0-10       | 5-100       |            |                 | 0-500      | 350-1,000   |            |
| 600   |                               |                                  |                              |                                              |                                        |                                | 1,450           | 425                          |                              | 2,850                      |                          | 0-10       | 5-120       |            |                 | 0-550      | 400-1,000   |            |
| 575   |                               |                                  |                              |                                              |                                        |                                | 1,475           | 450                          |                              | 2,850                      | 0                        | 0-15       | 10-150      |            | 0               | 0-600      | 400-1,000   |            |
| 550   |                               |                                  |                              |                                              |                                        |                                | 1,475           | 475                          |                              | 2,825                      | 0-5                      | 0-20       | 10-190      |            | 0-50            | 0-600      | 450-1,050   |            |
| 525   |                               |                                  |                              |                                              |                                        |                                | 1,475           | 500                          |                              | 2,825                      | 0-5                      | 0-25       | 10-250      |            | 0-200           | 0-650      | 450-1,050   |            |
| 500   |                               |                                  |                              | 0                                            |                                        |                                | 1,500           | 525                          |                              | 2,800                      | 0-5                      | 0-25       | 15-300      |            | 0-250           | 0-650      | 500-1,050   |            |
| 475   |                               |                                  |                              | 50                                           |                                        |                                | 1,500           | 550                          |                              | 2,800                      | 0-5                      | 0-40       | 20-450      |            | 0-300           | 0-650      | 550-1,050   |            |
| 450   |                               |                                  |                              | 100                                          |                                        |                                | 1,500           | 575                          |                              | 2,775                      | 0-5                      | 5-50       | 25-570      |            | 0-300           | 50-700     | 550-1,100   |            |
| 425   |                               |                                  |                              | 150                                          |                                        |                                | 1,525           | 600                          |                              | 2,750                      | 0-10                     | 5-70       | 30-750      |            | 0-350           | 150-700    | 600-1,100   |            |
| 400   | 0                             |                                  |                              | 200                                          |                                        | 0                              | 1,525           | 600                          | 0                            | 2,725                      | 0-10                     | 5-90       | 40-1,000    |            | 0-400           | 200-700    | 600-1,100   |            |
| 375   | 50                            |                                  |                              | 250                                          |                                        | 400                            | 1,525           | 625                          | 125                          | 2,725                      | 0-15                     | 5-110      | 50-1,300    |            | 0-400           | 250-750    | 600-1,100   |            |
| 350   | 100                           |                                  |                              | 300                                          |                                        | 425                            | 1,525           | 650                          | 175                          | 2,700                      | 0-15                     | 10-140     | 70-1,600    |            | 0-400           | 300-750    | 650-1,100   |            |
| 325   | 150                           |                                  | 0                            | 325                                          |                                        | 425                            | 1,550           | 650                          | 225                          | 2,675                      | 0-20                     | 10-165     | 80-1,980    |            | 0-400           | 350-750    | 650-1,100   |            |
| 300   | 250                           | 0                                | 50                           | 350                                          |                                        | 425                            | 1,550           | 675                          | 250                          | 2,650                      | 0-25                     | 10-200     | 100-2,340   |            | 0-450           | 350-750    | 650-1,150   |            |
| 275   | 375                           | 25                               | 100                          | 375                                          |                                        | 450                            | 1,550           | 675                          | 275                          | 2,625                      | 0-25                     | 10-240     | 120-2,820   |            | 0-500           | 400-800    | 650-1,150   |            |
| 250   | 400                           | 75                               | 150                          | 400                                          |                                        | 450                            | 1,550           | 675                          | 300                          | 2,600                      | 0-35                     | 15-275     | 140-3,300   |            | 0-500           | 400-800    | 700-1,150   |            |
| 225   | 425                           | 100                              | 175                          | 400                                          |                                        | 450                            | 1,550           | 700                          | 325                          | 2,575                      | 0-35                     | 15-325     | 160-3,900   |            | 0-550           | 400-800    | 700-1,150   |            |
| 200   | 450                           | 125                              | 200                          | 425                                          |                                        | 475                            | 1,550           | 700                          | 350                          | 2,550                      | 5-50                     | 20-450     | 220-5,400   |            | 50-550          | 450-800    | 700-1,150   |            |
| 175   | 450                           | 175                              | 225                          | 450                                          | 0                                      | 475                            | 1,575           | 700                          | 350                          | 2,525                      | 5-60                     | 25-550     | 280-6,600   |            | 0               | 100-550    | 450-800     | 700-1,150  |
| 150   | 475                           | 225                              | 225                          | 450                                          | 400                                    | 500                            | 1,575           | 725                          | 375                          | 2,475                      | 5-80                     | 30-700     | 340-8,400   | 0-5        | 150-550         | 450-800    | 700-1,150   | 0-50       |
| 125   | 500                           | 275                              | 250                          | 475                                          | 425                                    | 500                            | 1,575           | 725                          | 375                          | 2,450                      | 5-100                    | 40-940     | 450-11,000  | 0-5        | 200-550         | 450-800    | 700-1,150   | 0-100      |
| 100   | 500                           | 300                              | 250                          | 475                                          | 425                                    | 525                            | 1,550           | 725                          | 400                          | 2,425                      | 5-125                    | 50-1,140   | 540-13,500  | 0-5        | 200-550         | 450-800    | 700-1,150   | 0-150      |
| 75    | 500                           | 300                              | 275                          | 475                                          | 425                                    | 525                            | 1,400           | 650                          | 350                          | 2,400                      | 10-160                   | 60-1,450   | 700-17,400  | 0-5        | 200-550         | 450-800    | 700-1,150   | 0-150      |
| 50    | 475                           | 300                              | 275                          | 475                                          | 400                                    | 500                            | 1,250           | 575                          | 325                          | 2,350                      | FALLOUT COVERS           |            |             |            |                 |            |             |            |
| 25    | 450                           | 275                              | 250                          | 425                                          | 350                                    | 475                            | 1,100           | 500                          | 275                          | 2,325                      |                          |            |             |            |                 |            |             |            |
| 0     | 325                           | 225                              | 175                          | 375                                          | 300                                    | 400                            | 925             | 450                          | 250                          | 2,275                      |                          |            |             |            |                 |            |             |            |

LGM 1

Figure 6.6d continued.

<sup>1</sup>Light Guided Missile.

CASUALTY and DAMAGE Tables  
Light Guided Missile

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                  |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt           | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,200 |                   | 0       |                     |         |                  |         |                                 |         |                                   |         | 600                      | 600     | 3,850             | 2,975 | 2,700 | 2,375           | 1,375 | 925   | 1,275             | 900   | 100   |
| 1,150 |                   | 250     |                     |         |                  |         |                                 |         |                                   |         | 850                      | 850     | 3,850             | 3,000 | 2,725 | 2,400           | 1,400 | 1,000 | 1,325             | 950   | 350   |
| 1,100 |                   | 400     |                     |         |                  |         |                                 | 0       |                                   |         | 1,000                    | 1,000   | 3,875             | 3,000 | 2,750 | 2,425           | 1,450 | 1,050 | 1,375             | 1,025 | 500   |
| 1,050 |                   | 525     |                     |         |                  |         |                                 | 325     |                                   |         | 150                      | 1,150   | 3,875             | 3,025 | 2,750 | 2,425           | 1,500 | 1,100 | 1,400             | 1,075 | 600   |
| 1,000 |                   | 625     |                     |         |                  |         |                                 | 450     |                                   |         | 350                      | 1,300   | 3,900             | 3,050 | 2,775 | 2,450           | 1,525 | 1,150 | 1,500             | 1,125 | 675   |
| 950   |                   | 700     |                     | 0       |                  |         |                                 | 550     |                                   |         | 475                      | 1,500   | 3,900             | 3,050 | 2,800 | 2,475           | 1,550 | 1,200 | 1,650             | 1,150 | 750   |
| 900   | 0                 | 750     |                     | 200     |                  |         |                                 | 625     |                                   |         | 550                      | 1,750   | 3,925             | 3,075 | 2,800 | 2,500           | 1,575 | 1,225 | 2,100             | 1,200 | 800   |
| 850   | 275               | 800     |                     | 350     | 0                |         |                                 | 700     |                                   |         | 0                        | 625     | 2,125             | 2,125 | 3,925 | 3,075           | 2,825 | 2,500 | 1,600             | 1,250 | 850   |
| 800   | 400               | 850     |                     | 450     | 300              |         |                                 | 750     |                                   |         | 175                      | 700     | 2,175             | 2,175 | 3,950 | 3,100           | 2,850 | 2,525 | 1,625             | 1,300 | 900   |
| 775   | 450               | 875     |                     | 500     | 350              |         |                                 | 775     |                                   |         | 475                      | 725     | 2,200             | 2,200 | 3,950 | 3,100           | 2,850 | 2,525 | 1,650             | 1,300 | 925   |
| 750   | 500               | 900     |                     | 550     | 400              |         |                                 | 800     |                                   |         | 550                      | 750     | 2,200             | 2,200 | 3,950 | 3,100           | 2,850 | 2,550 | 1,650             | 1,325 | 950   |
| 725   | 525               | 925     | 0                   | 575     | 450              |         |                                 | 825     |                                   |         | 175                      | 775     | 2,200             | 2,200 | 3,950 | 3,125           | 2,850 | 2,550 | 1,675             | 1,350 | 950   |
| 700   | 550               | 950     | 100                 | 600     | 475              |         |                                 | 850     |                                   |         | 250                      | 800     | 2,175             | 2,175 | 3,975 | 3,125           | 2,875 | 2,550 | 1,675             | 1,350 | 975   |
| 675   | 600               | 950     | 200                 | 625     | 525              |         |                                 | 875     |                                   |         | 325                      | 825     | 2,175             | 2,175 | 3,975 | 3,125           | 2,875 | 2,550 | 1,700             | 1,350 | 1,000 |
| 650   | 625               | 975     | 275                 | 650     | 550              |         |                                 | 875     |                                   |         | 375                      | 1,200   | 2,150             | 2,150 | 3,975 | 3,150           | 2,875 | 2,575 | 1,700             | 1,375 | 1,000 |
| 625   | 650               | 1,000   | 325                 | 675     | 575              |         |                                 | 900     |                                   |         | 400                      | 1,225   | 2,125             | 2,125 | 3,975 | 3,150           | 2,875 | 2,575 | 1,700             | 1,400 | 1,025 |
| 600   | 650               | 1,000   | 375                 | 700     | 600              |         |                                 | 925     |                                   |         | 450                      | 1,250   | 2,100             | 2,100 | 3,975 | 3,150           | 2,900 | 2,575 | 1,725             | 1,400 | 1,050 |
| 575   | 675               | 1,025   | 400                 | 725     | 625              |         |                                 | 950     |                                   |         | 475                      | 1,275   | 2,075             | 2,075 | 3,975 | 3,150           | 2,900 | 2,600 | 1,725             | 1,400 | 1,050 |
| 550   | 700               | 1,025   | 450                 | 750     | 650              |         | 0                               | 950     |                                   |         | 500                      | 1,275   | 2,075             | 2,075 | 3,975 | 3,150           | 2,900 | 2,600 | 1,725             | 1,425 | 1,075 |
| 525   | 725               | 1,050   | 475                 | 750     | 675              |         | 150                             | 975     |                                   |         | 525                      | 1,250   | 2,000             | 2,000 | 4,000 | 3,150           | 2,900 | 2,600 | 1,750             | 1,425 | 1,075 |
| 500   | 825               | 1,050   | 500                 | 775     | 675              |         | 225                             | 975     |                                   |         | 550                      | 1,250   | 1,975             | 1,975 | 4,000 | 3,175           | 2,900 | 2,600 | 1,750             | 1,450 | 1,100 |
| 475   | 850               | 1,075   | 525                 | 800     | 700              |         | 275                             | 975     |                                   |         | 575                      | 1,225   | 1,950             | 1,950 | 4,000 | 3,175           | 2,925 | 2,600 | 1,750             | 1,450 | 1,100 |
| 450   | 850               | 1,075   | 550                 | 800     | 725              |         | 300                             | 975     |                                   |         | 600                      | 1,200   | 1,900             | 1,900 | 4,000 | 3,175           | 2,925 | 2,600 | 1,750             | 1,450 | 1,125 |
| 425   | 850               | 1,100   | 575                 | 825     | 725              |         | 350                             | 975     |                                   |         | 625                      | 1,175   | 1,850             | 1,850 | 4,000 | 3,175           | 2,925 | 2,625 | 1,775             | 1,450 | 1,125 |
| 400   | 850               | 1,100   | 575                 | 825     | 750              |         | 375                             | 975     |                                   |         | 625                      | 1,175   | 1,825             | 1,825 | 4,000 | 3,175           | 2,925 | 2,625 | 1,775             | 1,475 | 1,125 |
| 375   | 875               | 1,100   | 600                 | 850     | 750              |         | 400                             | 975     |                                   |         | 650                      | 1,150   | 1,775             | 1,775 | 4,000 | 3,175           | 2,925 | 2,625 | 1,775             | 1,475 | 1,150 |
| 350   | 875               | 1,125   | 625                 | 850     | 775              |         | 425                             | 975     |                                   |         | 650                      | 1,125   | 1,750             | 1,750 | 4,000 | 3,175           | 2,925 | 2,625 | 1,800             | 1,475 | 1,150 |
| 325   | 875               | 1,125   | 650                 | 850     | 775              |         | 450                             | 975     |                                   |         | 675                      | 1,100   | 1,700             | 1,700 | 4,025 | 3,175           | 2,950 | 2,625 | 1,800             | 1,475 | 1,150 |
| 300   | 875               | 1,125   | 650                 | 875     | 800              |         | 450                             | 975     |                                   |         | 675                      | 1,075   | 1,650             | 1,650 | 4,025 | 3,175           | 2,950 | 2,625 | 1,800             | 1,500 | 1,175 |
| 275   | 875               | 1,150   | 650                 | 875     | 800              |         | 475                             | 975     |                                   |         | 700                      | 1,075   | 1,625             | 1,625 | 4,025 | 3,200           | 2,950 | 2,650 | 1,800             | 1,500 | 1,175 |
| 250   | 875               | 1,150   | 650                 | 900     | 800              |         | 475                             | 975     |                                   |         | 700                      | 1,050   | 1,600             | 1,600 | 4,025 | 3,200           | 2,950 | 2,650 | 1,800             | 1,500 | 1,175 |
| 225   | 875               | 1,150   | 675                 | 900     | 825              |         | 500                             | 975     |                                   |         | 700                      | 1,025   | 1,575             | 1,575 | 4,025 | 3,200           | 2,950 | 2,650 | 1,800             | 1,500 | 1,175 |
| 200   | 875               | 1,150   | 675                 | 900     | 825              |         | 500                             | 975     |                                   |         | 725                      | 1,025   | 1,550             | 1,550 | 4,025 | 3,200           | 2,950 | 2,650 | 1,800             | 1,500 | 1,200 |
| 175   | 875               | 1,150   | 700                 | 900     | 825              |         | 525                             | 975     |                                   |         | 725                      | 1,000   | 1,500             | 1,500 | 4,025 | 3,200           | 2,950 | 2,650 | 1,800             | 1,500 | 1,200 |
| 150   | 875               | 1,150   | 700                 | 900     | 825              |         | 525                             | 975     |                                   |         | 725                      | 975     | 1,475             | 1,475 | 4,025 | 3,200           | 2,950 | 2,650 | 1,800             | 1,500 | 1,200 |
| 125   | 875               | 1,175   | 700                 | 900     | 850              |         | 525                             | 975     |                                   |         | 725                      | 975     | 1,450             | 1,450 | 3,800 | 3,050           | 2,850 | 2,600 | 1,825             | 1,525 | 1,200 |
| 100   | 900               | 1,175   | 700                 | 925     | 850              |         | 525                             | 975     |                                   |         | 950                      | 1,050   | 1,425             | 1,425 | 3,575 | 2,825           | 2,600 | 2,525 | 1,825             | 1,525 | 1,200 |
| 75    | 900               | 1,175   | 700                 | 925     | 850              |         | 550                             | 975     |                                   |         | 925                      | 1,050   | 1,400             | 1,400 | 3,325 | 2,600           | 2,350 | 2,450 | 1,825             | 1,525 | 1,200 |
| 50    | 900               | 1,175   | 700                 | 925     | 850              |         | 550                             | 975     |                                   |         | 900                      | 1,050   | 1,375             | 1,375 | 3,075 | 2,350           | 2,100 | 2,350 | 1,825             | 1,525 | 1,200 |
| 25    | 900               | 1,175   | 700                 | 925     | 850              |         | 550                             | 975     |                                   |         | 900                      | 1,050   | 1,350             | 1,350 | 2,850 | 2,125           | 1,850 | 2,275 | 1,825             | 1,525 | 1,200 |
| 0     | 900               | 1,175   | 700                 | 925     | 850              |         | 550                             | 975     |                                   |         | 875                      | 1,050   | 1,325             | 1,325 | 2,575 | 1,875           | 1,600 | 2,175 | 1,825             | 1,525 | 1,200 |

$HOB_{18} = 65 \text{ m}$   
 $Low\ HOB_{min} = 115 \text{ m}$   
 $High\ HOB_{min} = 259 \text{ m}$   
 $HOB_{99} = HOB_{18} + 3.5\ PE_h \text{ m}$   
 $HOB_{98} = HOB_{18} + 3.0\ PE_h \text{ m}$   
 $HOB_{90} = HOB_{18} + 1.9\ PE_h \text{ m}$

Figure 6.6e.

# CASUALTY and DAMAGE Tables Light Guided Missile

ECHO/10 KT

All figures in meters

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                      | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|-----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hury and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                         |                                | Exposd<br>skin  | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                         |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III  | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 1,200 |                               |                                  |                              |                                              |                                         |                                | 1,775           |                              |                              | 3,650                      |                          |            | 0-5          |            |                 |            | 0-650       |            |
| 1,150 |                               |                                  |                              |                                              |                                         |                                | 1,825           |                              |                              | 3,675                      |                          |            | 0-5          |            |                 |            | 0-750       |            |
| 1,100 |                               |                                  |                              |                                              |                                         |                                | 1,850           |                              |                              | 3,675                      |                          |            | 0-10         |            |                 |            | 0-800       |            |
| 1,050 |                               |                                  |                              |                                              |                                         |                                | 1,875           | 0                            |                              | 3,675                      |                          |            | 0-10         |            |                 |            | 0-850       |            |
| 1,000 |                               |                                  |                              |                                              |                                         |                                | 1,900           | 150                          |                              | 3,675                      |                          |            | 0-15         |            |                 |            | 0-950       |            |
| 950   |                               |                                  |                              |                                              |                                         |                                | 1,925           | 350                          |                              | 3,675                      |                          | 0          | 0-20         |            |                 | 0          | 0-1,000     |            |
| 900   |                               |                                  |                              |                                              |                                         |                                | 1,950           | 450                          |                              | 3,650                      |                          | 0-5        | 0-25         |            |                 | 0-50       | 0-1,050     |            |
| 850   |                               |                                  |                              |                                              |                                         |                                | 1,975           | 550                          |                              | 3,625                      |                          | 0-5        | 0-35         |            |                 | 0-350      | 0-1,050     |            |
| 800   |                               |                                  |                              |                                              |                                         |                                | 2,000           | 625                          |                              | 3,600                      |                          | 0-5        | 5-45         |            |                 | 0-450      | 50-1,100    |            |
| 775   |                               |                                  |                              |                                              |                                         |                                | 2,000           | 650                          |                              | 3,600                      |                          | 0-5        | 5-55         |            |                 | 0-500      | 200-1,150   |            |
| 750   |                               |                                  |                              |                                              |                                         |                                | 2,025           | 675                          |                              | 3,600                      |                          | 0-10       | 5-70         |            |                 | 0-550      | 300-1,150   |            |
| 725   |                               |                                  |                              |                                              |                                         |                                | 2,025           | 700                          |                              | 3,575                      |                          | 0-10       | 5-85         |            |                 | 0-550      | 350-1,150   |            |
| 700   |                               |                                  |                              |                                              |                                         |                                | 2,025           | 725                          |                              | 3,575                      |                          | 0-10       | 5-100        |            |                 | 0-600      | 400-1,200   |            |
| 675   |                               |                                  |                              |                                              |                                         |                                | 2,050           | 750                          |                              | 3,550                      |                          | 0-15       | 5-125        |            |                 | 0-600      | 450-1,200   |            |
| 650   |                               |                                  |                              |                                              |                                         |                                | 2,050           | 775                          |                              | 3,550                      |                          | 0-15       | 10-160       |            |                 | 0-650      | 500-1,200   |            |
| 625   |                               |                                  |                              | 0                                            |                                         |                                | 2,050           | 800                          |                              | 3,525                      | 0                        | 0-20       | 10-200       |            | 0               | 0-700      | 500-1,200   |            |
| 600   |                               |                                  |                              | 50                                           |                                         |                                | 2,075           | 800                          |                              | 3,525                      | 0-5                      | 0-20       | 10-240       |            | 0-50            | 0-700      | 550-1,250   |            |
| 575   |                               |                                  |                              | 125                                          |                                         |                                | 2,075           | 825                          |                              | 3,500                      | 0-5                      | 0-25       | 15-300       |            | 0-200           | 0-700      | 600-1,250   |            |
| 550   |                               |                                  |                              | 175                                          |                                         |                                | 2,075           | 850                          | 0                            | 3,475                      | 0-5                      | 0-35       | 15-380       |            | 0-250           | 0-750      | 600-1,250   |            |
| 525   |                               |                                  |                              | 225                                          |                                         |                                | 2,075           | 875                          | 125                          | 3,450                      | 0-5                      | 0-45       | 20-500       |            | 0-300           | 0-750      | 650-1,250   |            |
| 500   | 0                             |                                  |                              | 275                                          |                                         |                                | 2,100           | 875                          | 200                          | 3,450                      | 0-10                     | 5-50       | 25-600       |            | 0-350           | 50-800     | 650-1,300   |            |
| 475   | 50                            |                                  |                              | 325                                          |                                         | 0                              | 2,100           | 900                          | 250                          | 3,425                      | 0-10                     | 5-75       | 40-900       |            | 0-400           | 150-800    | 650-1,300   |            |
| 450   | 125                           |                                  |                              | 375                                          |                                         | 575                            | 2,100           | 900                          | 300                          | 3,400                      | 0-15                     | 5-100      | 50-1,140     |            | 0-400           | 250-800    | 700-1,300   |            |
| 425   | 175                           |                                  | 0                            | 400                                          |                                         | 600                            | 2,100           | 925                          | 325                          | 3,375                      | 0-15                     | 5-125      | 60-1,500     |            | 0-450           | 300-800    | 700-1,300   |            |
| 400   | 225                           |                                  | 25                           | 425                                          |                                         | 600                            | 2,125           | 925                          | 375                          | 3,350                      | 0-20                     | 10-170     | 80-1,980     |            | 0-450           | 300-850    | 700-1,300   |            |
| 375   | 350                           | 0                                | 75                           | 475                                          |                                         | 600                            | 2,125           | 950                          | 400                          | 3,325                      | 0-25                     | 10-220     | 120-2,600    |            | 0-500           | 350-850    | 750-1,300   |            |
| 350   | 475                           | 25                               | 125                          | 475                                          |                                         | 625                            | 2,125           | 950                          | 400                          | 3,300                      | 0-30                     | 15-270     | 140-3,200    |            | 0-500           | 400-850    | 750-1,350   |            |
| 325   | 500                           | 75                               | 175                          | 500                                          |                                         | 625                            | 2,125           | 950                          | 425                          | 3,275                      | 0-40                     | 15-330     | 160-3,960    |            | 0-500           | 400-850    | 750-1,350   |            |
| 300   | 550                           | 100                              | 200                          | 525                                          |                                         | 625                            | 2,125           | 975                          | 450                          | 3,250                      | 5-45                     | 20-390     | 200-4,680    |            | 50-550          | 400-850    | 750-1,350   |            |
| 275   | 575                           | 150                              | 250                          | 550                                          |                                         | 625                            | 2,125           | 975                          | 475                          | 3,225                      | 5-55                     | 20-470     | 230-5,650    | 0          | 150-550         | 450-900    | 800-1,350   | 0          |
| 250   | 575                           | 175                              | 275                          | 550                                          |                                         | 625                            | 2,125           | 975                          | 475                          | 3,200                      | 5-65                     | 25-550     | 270-6,600    | 0-5        | 200-550         | 450-900    | 800-1,350   | 0-50       |
| 225   | 600                           | 225                              | 275                          | 575                                          | 0                                       | 650                            | 2,150           | 975                          | 500                          | 3,175                      | 5-75                     | 30-650     | 320-7,800    | 0-5        | 200-600         | 450-900    | 800-1,350   | 0-150      |
| 200   | 625                           | 275                              | 300                          | 600                                          | 450                                     | 650                            | 2,150           | 1,000                        | 500                          | 3,150                      | 5-100                    | 40-900     | 440-10,800   | 0-5        | 250-600         | 500-900    | 800-1,350   | 0-150      |
| 175   | 650                           | 350                              | 325                          | 600                                          | 525                                     | 650                            | 2,150           | 1,000                        | 500                          | 3,125                      | 5-125                    | 50-1,100   | 540-13,200   | 0-5        | 250-600         | 500-900    | 800-1,350   | 0-200      |
| 150   | 650                           | 375                              | 325                          | 625                                          | 550                                     | 650                            | 2,150           | 1,000                        | 525                          | 3,075                      | 10-160                   | 60-1,400   | 680-16,800   | 0-5        | 300-600         | 500-900    | 800-1,350   | 0-200      |
| 125   | 650                           | 375                              | 350                          | 625                                          | 575                                     | 650                            | 2,075           | 975                          | 525                          | 3,050                      | 10-200                   | 75-1,850   | 900-22,200   | 0-5        | 300-600         | 500-900    | 800-1,350   | 0-250      |
| 100   | 650                           | 375                              | 350                          | 650                                          | 575                                     | 650                            | 1,900           | 900                          | 475                          | 3,025                      | 10-250                   | 90-2,250   | 1,080-27,000 | 0-10       | 300-600         | 500-900    | 800-1,350   | 0-250      |
| 75    | 650                           | 400                              | 375                          | 625                                          | 575                                     | 650                            | 1,750           | 825                          | 450                          | 2,975                      | 15-320                   | 120-2,900  | 1,400-34,800 | 0-10       | 300-600         | 500-900    | 800-1,350   | 0-250      |
| 50    | 625                           | 375                              | 350                          | 600                                          | 525                                     | 625                            | 1,575           | 750                          | 400                          | 2,950                      | FALLOUT GOVERNS          |            |              |            |                 |            |             |            |
| 25    | 550                           | 350                              | 300                          | 575                                          | 500                                     | 575                            | 1,425           | 675                          | 375                          | 2,900                      |                          |            |              |            |                 |            |             |            |
| 0     | 450                           | 300                              | 250                          | 500                                          | 425                                     | 500                            | 1,250           | 600                          | 325                          | 2,875                      |                          |            |              |            |                 |            |             |            |

LGM 1

Figure 6.6e continued.

<sup>1</sup>Light Guided Missile.

CASUALTY and DAMAGE Tables  
Light Guided Missile

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,200 |                   | 400     |                     |         |                    | 250     |                                 |         |                                   | 0       | 1,600                    | 1,600   | 5,725             | 3,850 | 3,275 | 3,350           | 1,950 | 1,375 | 2,050             | 1,075 | 575   |
| 1,150 |                   | 525     |                     |         |                    | 425     |                                 |         |                                   | 250     | 1,750                    | 1,750   | 5,725             | 3,875 | 3,300 | 3,375           | 1,975 | 1,425 | 2,475             | 1,125 | 675   |
| 1,100 |                   | 625     |                     |         |                    | 550     |                                 |         |                                   | 425     | 1,950                    | 1,950   | 5,750             | 3,875 | 3,325 | 3,400           | 2,000 | 1,450 | 2,700             | 1,150 | 750   |
| 1,050 |                   | 700     |                     | 0       |                    | 625     |                                 |         |                                   | 525     | 2,350                    | 2,350   | 5,750             | 3,900 | 3,350 | 3,400           | 2,025 | 1,500 | 2,750             | 1,275 | 825   |
| 1,000 | 0                 | 775     |                     | 225     | 0                  | 700     |                                 |         | 0                                 | 625     | 2,625                    | 2,625   | 5,750             | 3,900 | 3,350 | 3,425           | 2,050 | 1,525 | 2,750             | 1,400 | 875   |
| 950   | 300               | 825     |                     | 400     | 175                | 775     |                                 |         | 475                               | 700     | 2,675                    | 2,675   | 5,775             | 3,925 | 3,375 | 3,425           | 2,075 | 1,550 | 2,750             | 1,650 | 925   |
| 900   | 425               | 875     |                     | 500     | 350                | 825     |                                 |         | 625                               | 750     | 2,700                    | 2,700   | 5,775             | 3,925 | 3,375 | 3,450           | 2,100 | 1,600 | 2,750             | 1,800 | 975   |
| 850   | 525               | 925     |                     | 575     | 450                | 875     |                                 | 0       | 800                               | 825     | 2,700                    | 2,700   | 5,775             | 3,950 | 3,400 | 3,475           | 2,125 | 1,625 | 2,775             | 1,875 | 1,025 |
| 800   | 600               | 975     | 0                   | 650     | 550                | 925     |                                 | 275     | 1,150                             | 1,150   | 2,650                    | 2,650   | 5,800             | 3,950 | 3,400 | 3,475           | 2,150 | 1,650 | 2,725             | 1,850 | 1,075 |
| 775   | 625               | 1,000   | 200                 | 675     | 575                | 950     |                                 | 350     | 1,450                             | 1,450   | 2,650                    | 2,650   | 5,800             | 3,950 | 3,425 | 3,475           | 2,150 | 1,650 | 2,700             | 1,850 | 1,075 |
| 750   | 650               | 1,025   | 275                 | 700     | 600                | 975     |                                 | 400     | 1,525                             | 1,525   | 2,625                    | 2,625   | 5,800             | 3,950 | 3,425 | 3,475           | 2,150 | 1,675 | 2,675             | 1,825 | 1,100 |
| 725   | 675               | 1,025   | 325                 | 725     | 625                | 975     |                                 | 450     | 1,550                             | 1,550   | 2,575                    | 2,575   | 5,800             | 3,975 | 3,425 | 3,500           | 2,175 | 1,675 | 2,650             | 1,800 | 1,125 |
| 700   | 700               | 1,050   | 400                 | 750     | 675                | 1,000   |                                 | 475     | 1,550                             | 1,550   | 2,525                    | 2,525   | 5,800             | 3,975 | 3,425 | 3,500           | 2,175 | 1,700 | 2,600             | 1,800 | 1,125 |
| 675   | 725               | 1,075   | 425                 | 775     | 700                | 1,025   |                                 | 525     | 1,525                             | 1,525   | 2,475                    | 2,475   | 5,800             | 3,975 | 3,425 | 3,500           | 2,175 | 1,700 | 2,575             | 1,775 | 1,150 |
| 650   | 1,000             | 1,075   | 475                 | 800     | 725                | 1,050   | 0                               | 550     | 1,525                             | 1,525   | 2,450                    | 2,450   | 5,825             | 3,975 | 3,450 | 3,500           | 2,200 | 1,700 | 2,550             | 1,750 | 1,150 |
| 625   | 1,100             | 1,100   | 500                 | 825     | 725                | 1,050   | 125                             | 575     | 1,525                             | 1,525   | 2,400                    | 2,400   | 5,825             | 3,975 | 3,450 | 3,500           | 2,200 | 1,725 | 2,500             | 1,725 | 1,175 |
| 600   | 1,125             | 1,125   | 525                 | 825     | 750                | 1,075   | 200                             | 600     | 1,500                             | 1,500   | 2,350                    | 2,350   | 5,825             | 3,975 | 3,450 | 3,525           | 2,200 | 1,725 | 2,475             | 1,700 | 1,200 |
| 575   | 1,125             | 1,125   | 550                 | 850     | 775                | 1,075   | 275                             | 625     | 1,500                             | 1,500   | 2,325                    | 2,325   | 5,825             | 4,000 | 3,450 | 3,525           | 2,225 | 1,750 | 2,425             | 1,675 | 1,200 |
| 550   | 1,150             | 1,150   | 575                 | 875     | 800                | 1,100   | 325                             | 650     | 1,475                             | 1,475   | 2,275                    | 2,275   | 5,825             | 4,000 | 3,450 | 3,525           | 2,225 | 1,750 | 2,400             | 1,650 | 1,225 |
| 525   | 1,150             | 1,150   | 600                 | 875     | 800                | 1,100   | 350                             | 675     | 1,450                             | 1,450   | 2,250                    | 2,250   | 5,825             | 4,000 | 3,450 | 3,525           | 2,225 | 1,750 | 2,350             | 1,625 | 1,225 |
| 500   | 1,150             | 1,150   | 625                 | 900     | 825                | 1,125   | 400                             | 700     | 1,425                             | 1,425   | 2,200                    | 2,200   | 5,825             | 4,000 | 3,475 | 3,525           | 2,225 | 1,750 | 2,300             | 1,600 | 1,225 |
| 475   | 1,150             | 1,175   | 650                 | 900     | 850                | 1,125   | 425                             | 700     | 1,400                             | 1,400   | 2,175                    | 2,175   | 5,825             | 4,000 | 3,475 | 3,525           | 2,250 | 1,775 | 2,275             | 1,575 | 1,250 |
| 450   | 1,150             | 1,175   | 650                 | 925     | 850                | 1,150   | 450                             | 725     | 1,375                             | 1,375   | 2,150                    | 2,150   | 5,825             | 4,000 | 3,475 | 3,525           | 2,250 | 1,775 | 2,225             | 1,550 | 1,250 |
| 425   | 1,150             | 1,175   | 675                 | 925     | 875                | 1,150   | 475                             | 750     | 1,350                             | 1,350   | 2,100                    | 2,100   | 5,825             | 4,000 | 3,475 | 3,525           | 2,250 | 1,775 | 2,175             | 1,550 | 1,275 |
| 400   | 1,150             | 1,200   | 700                 | 950     | 875                | 1,150   | 500                             | 750     | 1,350                             | 1,350   | 2,075                    | 2,075   | 5,825             | 4,000 | 3,475 | 3,550           | 2,250 | 1,775 | 2,125             | 1,550 | 1,275 |
| 375   | 1,150             | 1,200   | 700                 | 950     | 875                | 1,175   | 525                             | 775     | 1,325                             | 1,325   | 2,050                    | 2,050   | 5,850             | 4,025 | 3,475 | 3,550           | 2,250 | 1,800 | 2,100             | 1,575 | 1,275 |
| 350   | 1,150             | 1,200   | 725                 | 975     | 900                | 1,175   | 525                             | 775     | 1,300                             | 1,300   | 2,025                    | 2,025   | 5,850             | 4,025 | 3,475 | 3,550           | 2,250 | 1,800 | 2,050             | 1,575 | 1,275 |
| 325   | 1,150             | 1,225   | 725                 | 975     | 900                | 1,175   | 550                             | 775     | 1,275                             | 1,275   | 1,975                    | 1,975   | 5,850             | 4,025 | 3,475 | 3,550           | 2,275 | 1,800 | 2,025             | 1,575 | 1,300 |
| 300   | 1,150             | 1,225   | 750                 | 975     | 925                | 1,175   | 550                             | 800     | 1,275                             | 1,275   | 1,950                    | 1,950   | 5,850             | 4,025 | 3,500 | 3,550           | 2,275 | 1,800 | 2,000             | 1,575 | 1,300 |
| 275   | 1,150             | 1,225   | 750                 | 1,000   | 925                | 1,200   | 575                             | 800     | 1,250                             | 1,250   | 1,925                    | 1,925   | 5,850             | 4,025 | 3,500 | 3,550           | 2,275 | 1,800 | 1,950             | 1,575 | 1,300 |
| 250   | 1,150             | 1,225   | 750                 | 1,000   | 925                | 1,200   | 575                             | 825     | 1,225                             | 1,225   | 1,900                    | 1,900   | 5,850             | 4,025 | 3,500 | 3,550           | 2,275 | 1,800 | 1,925             | 1,600 | 1,300 |
| 225   | 1,150             | 1,250   | 775                 | 1,000   | 950                | 1,200   | 600                             | 825     | 1,225                             | 1,225   | 1,875                    | 1,875   | 5,850             | 4,025 | 3,500 | 3,500           | 2,275 | 1,825 | 1,900             | 1,600 | 1,325 |
| 200   | 1,150             | 1,250   | 775                 | 1,000   | 950                | 1,200   | 600                             | 825     | 1,200                             | 1,200   | 1,850                    | 1,850   | 5,850             | 4,025 | 3,500 | 3,550           | 2,275 | 1,825 | 1,875             | 1,600 | 1,325 |
| 175   | 1,125             | 1,250   | 775                 | 1,000   | 950                | 1,200   | 625                             | 825     | 1,175                             | 1,175   | 1,825                    | 1,825   | 5,725             | 3,925 | 3,400 | 3,500           | 2,200 | 1,800 | 1,825             | 1,600 | 1,325 |
| 150   | 1,125             | 1,250   | 800                 | 1,000   | 950                | 1,225   | 625                             | 850     | 1,175                             | 1,175   | 1,800                    | 1,800   | 5,400             | 3,725 | 3,200 | 3,325           | 2,225 | 1,775 | 1,850             | 1,600 | 1,325 |
| 125   | 1,100             | 1,250   | 800                 | 1,025   | 950                | 1,225   | 625                             | 850     | 1,150                             | 1,175   | 1,775                    | 1,775   | 5,100             | 3,525 | 3,000 | 3,150           | 2,175 | 1,750 | 1,850             | 1,600 | 1,325 |
| 100   | 1,075             | 1,250   | 800                 | 1,025   | 950                | 1,225   | 625                             | 850     | 1,150                             | 1,175   | 1,750                    | 1,750   | 4,750             | 3,300 | 2,800 | 2,975           | 2,150 | 1,725 | 1,850             | 1,600 | 1,325 |
| 75    | 1,050             | 1,250   | 800                 | 1,025   | 950                | 1,225   | 625                             | 850     | 1,125                             | 1,175   | 1,725                    | 1,725   | 4,500             | 3,100 | 2,625 | 2,750           | 2,100 | 1,700 | 1,875             | 1,600 | 1,325 |
| 50    | 1,025             | 1,250   | 800                 | 1,025   | 975                | 1,225   | 625                             | 850     | 1,125                             | 1,175   | 1,700                    | 1,700   | 4,100             | 2,875 | 2,425 | 2,600           | 2,050 | 1,675 | 1,875             | 1,600 | 1,325 |
| 25    | 1,000             | 1,250   | 800                 | 1,025   | 975                | 1,225   | 625                             | 850     | 1,100                             | 1,175   | 1,675                    | 1,675   | 3,750             | 2,675 | 2,250 | 2,425           | 2,025 | 1,650 | 1,875             | 1,600 | 1,325 |
| 0     | 1,000             | 1,250   | 800                 | 1,025   | 975                | 1,225   | 625                             | 850     | 1,100                             | 1,175   | 1,675                    | 1,675   | 3,375             | 2,475 | 2,050 | 2,275           | 1,975 | 1,625 | 1,875             | 1,600 | 1,325 |

HOB<sub>18</sub> = 82 m  
 Low HOB<sub>min</sub> = 144 m  
 High HOB<sub>min</sub> = 326 m  
 HOB<sub>99</sub> = HOB<sub>18</sub> + 3.5 PE<sub>h</sub> m  
 HOB<sub>98</sub> = HOB<sub>18</sub> + 3.0 PE<sub>h</sub> m  
 HOB<sub>90</sub> = HOB<sub>18</sub> + 1.9 PE<sub>h</sub> m

Figure 6.6f.

# CASUALTY and DAMAGE Tables Light Guided Missile

FOXTROT/20 KT

All figures in meters

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>Hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III  | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            |                          |            |              |            |                 |            |             |            |
| 1,200 |                               |                                  |                              |                                              |                                        |                                | 2,625           | 650                          |                              | 4,625                      |                          |            | 0-10         |            |                 |            | 0-750       |            |
| 1,150 |                               |                                  |                              |                                              |                                        |                                | 2,650           | 750                          |                              | 4,600                      |                          |            | 0-10         |            |                 |            | 0-800       |            |
| 1,100 |                               |                                  |                              |                                              |                                        |                                | 2,675           | 825                          |                              | 4,600                      |                          |            | 0-15         |            |                 |            | 0-900       |            |
| 1,050 |                               |                                  |                              |                                              |                                        |                                | 2,700           | 875                          |                              | 4,575                      |                          | 0          | 0-20         |            |                 | 0          | 0-950       |            |
| 1,000 |                               |                                  |                              |                                              |                                        |                                | 2,700           | 925                          |                              | 4,550                      |                          | 0-5        | 0-25         |            |                 | 0-50       | 0-1,000     |            |
| 950   |                               |                                  |                              |                                              |                                        |                                | 2,725           | 975                          |                              | 4,525                      |                          | 0-5        | 0-35         |            |                 | 0-300      | 0-1,050     |            |
| 900   |                               |                                  |                              |                                              |                                        |                                | 2,750           | 1,025                        |                              | 4,500                      |                          | 0-5        | 5-45         |            |                 | 0-450      | 50-1,100    |            |
| 850   |                               |                                  |                              |                                              |                                        |                                | 2,750           | 1,075                        |                              | 4,475                      |                          | 0-10       | 5-65         |            |                 | 0-550      | 350-1,150   |            |
| 800   |                               |                                  |                              | 0                                            |                                        |                                | 2,775           | 1,100                        |                              | 4,450                      |                          | 0-10       | 5-90         |            |                 | 0-600      | 450-1,150   |            |
| 775   |                               |                                  |                              | 25                                           |                                        |                                | 2,775           | 1,125                        |                              | 4,450                      | 0                        | 0-10       | 5-110        |            | 0               | 0-650      | 500-1,200   |            |
| 750   |                               |                                  |                              | 75                                           |                                        |                                | 2,800           | 1,150                        | 0                            | 4,425                      | 0-5                      | 0-15       | 10-140       |            | 0-50            | 0-700      | 550-1,200   |            |
| 725   |                               |                                  |                              | 150                                          |                                        |                                | 2,800           | 1,150                        | 75                           | 4,400                      | 0-5                      | 0-15       | 10-170       |            | 0-200           | 0-700      | 550-1,200   |            |
| 700   |                               |                                  |                              | 225                                          |                                        |                                | 2,800           | 1,175                        | 200                          | 4,400                      | 0-5                      | 0-20       | 10-200       |            | 0-300           | 0-750      | 600-1,250   |            |
| 675   |                               |                                  |                              | 275                                          |                                        |                                | 2,800           | 1,200                        | 275                          | 4,375                      | 0-5                      | 0-25       | 10-250       |            | 0-350           | 0-750      | 600-1,250   |            |
| 650   |                               |                                  |                              | 325                                          |                                        |                                | 2,825           | 1,200                        | 325                          | 4,350                      | 0-5                      | 0-30       | 15-320       |            | 0-400           | 0-800      | 650-1,250   |            |
| 625   | 0                             |                                  |                              | 375                                          |                                        | 0                              | 2,825           | 1,225                        | 375                          | 4,325                      | 0-5                      | 0-35       | 20-390       |            | 0-450           | 0-800      | 700-1,300   |            |
| 600   | 75                            |                                  |                              | 425                                          |                                        | 750                            | 2,825           | 1,225                        | 425                          | 4,325                      | 0-5                      | 5-40       | 20-480       |            | 0-450           | 50-800     | 700-1,300   |            |
| 575   | 125                           |                                  |                              | 475                                          |                                        | 775                            | 2,825           | 1,250                        | 450                          | 4,300                      | 0-10                     | 5-50       | 25-590       |            | 0-500           | 200-850    | 700-1,300   |            |
| 550   | 200                           |                                  |                              | 525                                          |                                        | 775                            | 2,825           | 1,250                        | 475                          | 4,275                      | 0-10                     | 5-65       | 30-750       |            | 0-550           | 250-850    | 750-1,300   |            |
| 525   | 250                           |                                  | 0                            | 550                                          |                                        | 775                            | 2,850           | 1,275                        | 500                          | 4,250                      | 0-10                     | 5-85       | 40-990       |            | 0-600           | 300-900    | 750-1,350   |            |
| 500   | 325                           |                                  | 25                           | 575                                          |                                        | 775                            | 2,850           | 1,275                        | 525                          | 4,225                      | 0-15                     | 5-100      | 50-1,200     |            | 0-600           | 350-900    | 800-1,350   |            |
| 475   | 425                           | 0                                | 100                          | 600                                          |                                        | 775                            | 2,850           | 1,275                        | 550                          | 4,200                      | 0-20                     | 10-150     | 75-1,800     |            | 0-600           | 400-900    | 800-1,350   |            |
| 450   | 600                           | 25                               | 150                          | 625                                          | 0                                      | 800                            | 2,850           | 1,300                        | 575                          | 4,175                      | 0-25                     | 10-190     | 100-2,280    |            | 0-600           | 400-900    | 800-1,350   |            |
| 425   | 675                           | 75                               | 200                          | 650                                          | 550                                    | 800                            | 2,850           | 1,300                        | 600                          | 4,150                      | 0-30                     | 10-250     | 120-3,000    |            | 0-650           | 450-950    | 800-1,350   |            |
| 400   | 700                           | 100                              | 250                          | 675                                          | 650                                    | 800                            | 2,850           | 1,300                        | 600                          | 4,125                      | 0-40                     | 15-330     | 160-3,960    |            | 0-650           | 450-950    | 850-1,350   |            |
| 375   | 725                           | 150                              | 275                          | 700                                          | 675                                    | 800                            | 2,875           | 1,325                        | 625                          | 4,100                      | 0-50                     | 20-430     | 210-5,160    |            | 0-650           | 500-950    | 850-1,400   |            |
| 350   | 750                           | 200                              | 325                          | 725                                          | 675                                    | 825                            | 2,875           | 1,325                        | 650                          | 4,075                      | 5-60                     | 25-530     | 260-6,360    |            | 50-700          | 500-950    | 850-1,400   |            |
| 325   | 775                           | 225                              | 350                          | 725                                          | 700                                    | 825                            | 2,875           | 1,325                        | 650                          | 4,050                      | 5-75                     | 30-660     | 320-7,920    | 0          | 150-700         | 500-950    | 850-1,400   | 0          |
| 300   | 800                           | 275                              | 350                          | 750                                          | 700                                    | 825                            | 2,875           | 1,325                        | 675                          | 4,025                      | 5-90                     | 35-780     | 380-9,360    | 0-5        | 200-700         | 550-1,000  | 850-1,400   | 0-50       |
| 275   | 800                           | 325                              | 375                          | 775                                          | 700                                    | 825                            | 2,875           | 1,350                        | 675                          | 4,000                      | 5-105                    | 40-940     | 460-11,300   | 0-5        | 250-700         | 550-1,000  | 900-1,400   | 0-150      |
| 250   | 825                           | 375                              | 400                          | 775                                          | 700                                    | 850                            | 2,875           | 1,350                        | 675                          | 3,950                      | 5-125                    | 45-1,100   | 530-13,200   | 0-5        | 250-750         | 550-1,000  | 900-1,400   | 0-200      |
| 225   | 850                           | 425                              | 425                          | 800                                          | 725                                    | 850                            | 2,875           | 1,350                        | 700                          | 3,925                      | 10-150                   | 60-1,300   | 630-15,600   | 0-5        | 300-750         | 600-1,000  | 900-1,400   | 0-200      |
| 200   | 850                           | 475                              | 450                          | 825                                          | 725                                    | 850                            | 2,875           | 1,350                        | 700                          | 3,900                      | 10-200                   | 75-1,800   | 870-21,600   | 0-5        | 300-750         | 600-1,000  | 900-1,400   | 0-250      |
| 175   | 875                           | 500                              | 450                          | 825                                          | 725                                    | 850                            | 2,850           | 1,350                        | 725                          | 3,875                      | 10-250                   | 90-2,200   | 1,060-26,400 | 0-10       | 350-750         | 600-1,000  | 900-1,400   | 0-250      |
| 150   | 875                           | 500                              | 475                          | 850                                          | 725                                    | 850                            | 2,675           | 1,275                        | 675                          | 3,825                      | 15-310                   | 120-2,800  | 1,350-33,600 | 0-10       | 350-750         | 600-1,000  | 900-1,400   | 0-300      |
| 125   | 850                           | 500                              | 475                          | 850                                          | 725                                    | 850                            | 2,500           | 1,200                        | 650                          | 3,800                      | 20-410                   | 150-3,700  | 1,780-44,000 | 0-10       | 350-750         | 600-1,000  | 900-1,400   | 0-300      |
| 100   | 850                           | 525                              | 475                          | 850                                          | 700                                    | 825                            | 2,350           | 1,125                        | 600                          | 3,775                      | 20-500                   | 180-4,500  | 2,160-54,000 | 0-15       | 350-750         | 600-1,000  | 900-1,400   | 0-300      |
| 75    | 825                           | 500                              | 475                          | 825                                          | 675                                    | 800                            | 2,175           | 1,050                        | 550                          | 3,725                      | FALLOUT GOVERNS          |            |              |            |                 |            |             |            |
| 50    | 775                           | 500                              | 450                          | 775                                          | 750                                    | 750                            | 2,000           | 975                          | 525                          | 3,700                      |                          |            |              |            |                 |            |             |            |
| 25    | 700                           | 450                              | 375                          | 725                                          | 600                                    | 725                            | 1,850           | 900                          | 475                          | 3,650                      |                          |            |              |            |                 |            |             |            |
| 0     | 600                           | 400                              | 325                          | 650                                          | 550                                    | 650                            | 1,675           | 825                          | 450                          | 3,625                      |                          |            |              |            |                 |            |             |            |

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Figure 6.6f continued.

<sup>1</sup>Light Guided Missile.

# **CONTINGENT EFFECTS Tables** **Light Guided Missile**

**INDUCED RADIATION IN SOILS (See note 1.)**  
Fallout activity is not significant.  
Impact burst not tabulated, fallout governs.

| Yield<br><br>KT | HOB  | Estimated radii in meters of 2 rad/hr contour of induced radiation,<br>1 hour after burst. |                                 |                                      |                                                 | Estimated induced radiation intensity, 1 hour<br>after burst, at GZ. In rad/hr. |              |               |              |
|-----------------|------|--------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------|--------------|---------------|--------------|
|                 |      | Soil type I<br>(Liberia, Africa)                                                           | Soil type II<br>(Nevada desert) | Soil type III<br>(lava clay, Hawaii) | Soil type IV<br>(beach sand,<br>Pensacola, Fla) | Soil type I                                                                     | Soil type II | Soil type III | Soil type IV |
| ALFA/.5         | Low  | 0-350                                                                                      | 150-550                         | 450-850                              | 0                                               | 0-20                                                                            | 10-145       | 70-1,750      | 0            |
|                 | High | 0-350                                                                                      | 100-550                         | 450-850                              | 0                                               | 0-10                                                                            | 5-100        | 45-1,150      | 0            |
| BRAVO/1         | Low  | 0-400                                                                                      | 300-600                         | 450-950                              | 0                                               | 0-35                                                                            | 15-290       | 140-3,500     | 0            |
|                 | High | 0-400                                                                                      | 300-600                         | 450-950                              | 0                                               | 0-15                                                                            | 10-140       | 70-1,680      | 0            |
| CHARLIE/2       | Low  | 100-500                                                                                    | 350-700                         | 600-1,050                            | 0                                               | 5-70                                                                            | 25-580       | 280-7,000     | 0            |
|                 | High | 0-500                                                                                      | 350-700                         | 600-1,050                            | 0                                               | 0-35                                                                            | 15-280       | 140-3,400     | 0            |
| DELTA/5         | Low  | 200-550                                                                                    | 450-800                         | 700-1,150                            | 0-150                                           | 5-125                                                                           | 50-1,140     | 540-13,500    | 0-5          |
|                 | High | 0-550                                                                                      | 400-800                         | 700-1,150                            | 0                                               | 0-35                                                                            | 15-325       | 160-3,900     | 0            |
| ECHO/10         | Low  | 300-600                                                                                    | 500-900                         | 800-1,350                            | 0-250                                           | 10-250                                                                          | 90-2,250     | 1,080-27,000  | 0-10         |
|                 | High | 200-550                                                                                    | 450-900                         | 800-1,350                            | 0-50                                            | 5-65                                                                            | 25-550       | 270-6,600     | 0-5          |
| FOXTROT/20      | Low  | 350-750                                                                                    | 600-1,000                       | 900-1,400                            | 0-300                                           | 20-410                                                                          | 150-3,700    | 1,780-44,000  | 0-10         |
|                 | High | 150-700                                                                                    | 500-950                         | 850-1,400                            | 0                                               | 5-75                                                                            | 30-660       | 320-7,920     | 0            |
|                 | Low  |                                                                                            |                                 |                                      |                                                 |                                                                                 |              |               |              |
|                 | High |                                                                                            |                                 |                                      |                                                 |                                                                                 |              |               |              |
|                 | Low  |                                                                                            |                                 |                                      |                                                 |                                                                                 |              |               |              |
|                 | High |                                                                                            |                                 |                                      |                                                 |                                                                                 |              |               |              |

NOTE: For description, chemical composition and effects of variations in chemical composition in soil types, see FM 101-31-1, app III, annex F.

Figure 6.7a.

## **TREE BLOWDOWN (See note.)** All distances in meters

| Yield<br><br>KT | OBSTACLES TO MOVEMENT                |         |          |         |                             |                  |                   | CASUALTIES TO<br>EXPOSED PERSONNEL |                  |                   |
|-----------------|--------------------------------------|---------|----------|---------|-----------------------------|------------------|-------------------|------------------------------------|------------------|-------------------|
|                 | Foot and wheeled<br>vehicle movement |         |          |         | Tracked vehicle<br>movement |                  |                   |                                    |                  |                   |
|                 | Type I                               | Type II | Type III | Type IV | Type I                      | Types II, IVa(d) | Types III, IVa(f) | Type I                             | Types II, IVa(d) | Types III, IVa(f) |
| ALFA/.5         | 250                                  | 300     | 300      | 450     | 250                         | 300              | 300               | 150                                | 200              | 200               |
| BRAVO/1         | 300                                  | 400     | 400      | 700     | 300                         | 400              | 400               | 200                                | 300              | 300               |
| CHARLIE/2       | 350                                  | 500     | 550      | 900     | 350                         | 500              | 550               | 250                                | 400              | 400               |
| DELTA/5         | 600                                  | 800     | 900      | 1,400   | 600                         | 800              | 900               | 400                                | 600              | 600               |
| ECHO/10         | 750                                  | 1,000   | 1,100    | 1,900   | 750                         | 1,000            | 1,100             | 600                                | 800              | 900               |
| FOXTROT/20      | 1,050                                | 1,300   | 1,500    | 2,400   | 1,050                       | 1,300            | 1,500             | 750                                | 1,000            | 1,150             |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 6.7b.

## **LIGHT AIRCRAFT IN FLIGHT (See note 1.)**

| Yield<br><br>KT | AIRCRAFT SAFETY RADII—meters<br>(See note 2.) |                    |                        |
|-----------------|-----------------------------------------------|--------------------|------------------------|
|                 | Light fixed wing                              | Recon and obsn hel | Transport and util hel |
| ALFA/.5         | 4,000                                         | 4,000              | 4,000                  |
| BRAVO/1         | 5,000                                         | 5,000              | 5,000                  |
| CHARLIE/2       | 6,000                                         | 6,000              | 5,000                  |
| DELTA/5         | 9,000                                         | 9,000              | 7,000                  |
| ECHO/10         | 10,000                                        | 10,000             | 9,000                  |
| FOXTROT/20      | 13,000                                        | 13,000             | 11,000                 |

NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.

2. A buffer distance has been added to these radii of safety.

Figure 6.7c.

# **CONTINGENT EFFECTS Tables (continued)** **Light Guided Missile**

## **FIRE AREAS (See note.)**

| Yield<br>KT | HOB    | Expected radii for ignition of wildland fuels during fire season—meters |          |           |          |                                             |          |           |          |
|-------------|--------|-------------------------------------------------------------------------|----------|-----------|----------|---------------------------------------------|----------|-----------|----------|
|             |        | Dry climate (25 percent relative humidity)                              |          |           |          | Damp climate (75 percent relative humidity) |          |           |          |
|             |        | Class I                                                                 | Class II | Class III | Class IV | Class I                                     | Class II | Class III | Class IV |
| ALFA/.5     | Air    | 800                                                                     | 700      | 700       | 600      | 700                                         | 700      | 600       | 400      |
|             | Impact | 500                                                                     | 500      | 400       | 400      | 500                                         | 500      | 400       | 400      |
| BRAVO/1     | Air    | 1,100                                                                   | 1,000    | 900       | 700      | 1,000                                       | 1,000    | 800       | 600      |
|             | Impact | 700                                                                     | 600      | 500       | 500      | 600                                         | 600      | 500       | 400      |
| CHARLIE/2   | Air    | 1,400                                                                   | 1,300    | 1,000     | 800      | 1,300                                       | 1,300    | 1,100     | 800      |
|             | Impact | 900                                                                     | 800      | 700       | 600      | 800                                         | 800      | 700       | 500      |
| DELTA/5     | Air    | 2,000                                                                   | 1,800    | 1,700     | 1,400    | 1,800                                       | 1,800    | 1,500     | 1,100    |
|             | Impact | 1,200                                                                   | 1,100    | 1,000     | 800      | 1,100                                       | 1,100    | 900       | 700      |
| ECHO/10     | Air    | 2,600                                                                   | 2,400    | 2,200     | 1,800    | 2,400                                       | 2,400    | 2,100     | 1,500    |
|             | Impact | 1,500                                                                   | 1,400    | 1,300     | 1,100    | 1,400                                       | 1,400    | 1,200     | 900      |
| FOXTROT/20  | Air    | 3,400                                                                   | 3,200    | 2,900     | 2,400    | 3,200                                       | 3,200    | 2,700     | 2,000    |
|             | Impact | 2,000                                                                   | 1,900    | 1,700     | 1,400    | 1,900                                       | 1,900    | 1,500     | 1,200    |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 6.7d.

## **CRATER DIMENSIONS (See note.)**

| Yield<br>KT | Approx crater dimensions for various soil types—meters |       |                                         |       |                                                  |       |                                                   |       |
|-------------|--------------------------------------------------------|-------|-----------------------------------------|-------|--------------------------------------------------|-------|---------------------------------------------------|-------|
|             | Hard rock<br>(granite and<br>sandstone)                |       | Soft rock<br>(dry soil or<br>soft rock) |       | Saturated soil<br>(water slowly<br>fills crater) |       | Saturated soil<br>(water rapidly<br>fills crater) |       |
|             | Radius                                                 | Depth | Radius                                  | Depth | Radius                                           | Depth | Radius                                            | Depth |
| ALFA/.5     | 13                                                     | 5     | 16                                      | 6     | 24                                               | 8     | 31                                                | 4     |
| BRAVO/1     | 16                                                     | 6     | 20                                      | 7     | 30                                               | 10    | 39                                                | 5     |
| CHARLIE/2   | 20                                                     | 6     | 25                                      | 8     | 37                                               | 12    | 50                                                | 6     |
| DELTA/5     | 27                                                     | 8     | 34                                      | 10    | 50                                               | 15    | 67                                                | 7     |
| ECHO/10     | 34                                                     | 10    | 42                                      | 12    | 63                                               | 18    | 84                                                | 8     |
| FOXTROT/20  | 43                                                     | 11    | 53                                      | 14    | 80                                               | 21    | 106                                               | 10    |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 6.7e.

LGM 1

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## CHAPTER 7

### MEDIUM GUIDED MISSILE

#### 7.1 GENERAL

a. *Orientation.* This chapter contains employment data for the medium guided missile with its associated warhead sections fired from a mobile launcher.

b. *Weapon characteristics.*

(1) *Yield.* The warhead sections for the medium guided missile have yields of Delta/5 KT, Echo/10 KT, Foxtrot/20 KT, Golf/50 KT, Hotel/100 KT, India/200 KT, and Juliett/500 KT.

(2) *Fuzing.*

(a) The fuzing for the medium guided missile provides airburst and impact fuzing options. The airburst option is radar-fuzed and can be set for either high or low airburst; these are the only heights of burst available. When the fuze is set for an airburst, the system provides for an option of either contact backup or contact preclusion.

(b) The fuzes are preset at the following heights of burst:

| Warhead section | HOB option | HOB (meters) | PE <sub>h</sub> (meters) |
|-----------------|------------|--------------|--------------------------|
| Delta/5 KT      | low        | 227          | 50                       |
|                 | high       | 335          |                          |
| Echo/10 KT      | low        | 240          | 50                       |
|                 | high       | 402          |                          |
| Foxtrot/20 KT   | low        | 257          | 50                       |
|                 | high       | 461          |                          |
| Golf/50 KT      | low        | 286          | 50                       |
|                 | high       | 562          |                          |
| Hotel/100 KT    | low        | 315          | 50                       |
|                 | high       | 663          |                          |
| India/200 KT    | low        | 502          | 50                       |
|                 | high       | 790          |                          |
| Juliett/500 KT  | low        | 620          | 50                       |
|                 | high       | 1,009        |                          |

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The minimum and maximum ranges of the medium-guided missile are 50,000 meters and 150,000 meters.

(2) *Tactical system accuracy.* The tactical system errors for the medium guided missile are independent of range. A CEP of 500 meters has been used in the computation of the weapon selection tables. The vertical probable error is 50 meters.

(3) *Unit carrying capacity.* A medium guided missile unit can draw, transport, and store at any one time a total of 8 complete rounds per battalion.

(4) *Response time.* The times shown below can be used as a basis for general tactical planning. They are considered to be applicable to a reasonably well-trained unit operating in daylight under favorable weather conditions. Blackout operations, unfavorable weather, enemy interference, equipment breakdown, or faulty test indications will extend the times listed. *For detailed tactical planning, the response times should be the actual times obtained from the artillery unit concerned.*

| Situation       | Time (minutes) | Remarks                                                                                                                            |
|-----------------|----------------|------------------------------------------------------------------------------------------------------------------------------------|
| I <sup>1</sup>  | 60             | For situation I, add 25 minutes if warhead section must be removed and a new warhead section with required yield mated to missile. |
| II <sup>2</sup> | 20             |                                                                                                                                    |

<sup>1</sup>Situation I (high readiness)—the complete round and launcher are in a firing position and survey is completed. Preliminary firing data for a specific target are not available. Prefire checkout which can be performed prior to the receipt of a fire mission have been completed. (May be used to engage targets of opportunity.)

<sup>2</sup>Situation II (maximum readiness)—firing data for a specific target have been computed and applied to the weapon system. The unit is awaiting an order to fire. (Typical of readiness to engage on-call target).

(5) *Special considerations.* The target analyst needs no special information from the unit fire direction center for target analysis. The fire mission to the unit includes, for an airburst fuzing option, the radar HOB setting, high or low; it also includes whether contact backup or contact preclusion is desired. When contact backup is chosen, a fallout prediction is made. When an impact fuzing option is selected, the fire mission specifies HOB impact.

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# **EXPOSED Personnel Targets Medium Guided Missile**

| Yield | HOB option<br>(HOB-meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) |
|-------|----------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|
|       |                            |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |
|       |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|       |                            |                                                                            | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt                                            | Delayed |                                                  |
| KT    | (See note)                 |                                                                            |                                                                                                                                                                        |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |                                                   |         |                                                  |
| 5     | High ( 355)                | 4,200                                                                      | .2/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .4/.7                  | .4/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 650                                               | 950     | (all<br>yields)                                  |
|       | Low ( 227)                 | 4,200                                                                      | .2/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .5/.7                  | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 725                                               | 1,000   |                                                  |
|       | Impact                     | *3,100                                                                     | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .5/.8                  | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 800                                               | 1,050   |                                                  |
| 10    |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|       |                            |                                                                            | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |       |                                                   |         |                                                  |
|       | High ( 402)                | 5,100                                                                      | .4/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .5/.8                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 825                                               | 1,050   |                                                  |
|       | Low ( 240)                 | 5,100                                                                      | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .6/.8                  | .4/.6 | .3/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | 875                                               | 1,125   |                                                  |
|       | Impact                     | *3,600                                                                     | .4/.7                                                                                                                                                                  | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .6/.8                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       | 900                                               | 1,175   |                                                  |
| 20    |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|       |                            |                                                                            | 1,000                                                                                                                                                                  | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 |                                                   |         |                                                  |
|       | High ( 461)                | 6,900                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .4/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .6/.8                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       | 1,125                                             | 1,125   |                                                  |
|       | Low ( 257)                 | 6,900                                                                      | .5/.7                                                                                                                                                                  | .4/.6 | .4/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,125                                             | 1,200   |                                                  |
|       | Impact                     | *4,400                                                                     | .4/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.9                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,000                                             | 1,250   |                                                  |
| 50    |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|       |                            |                                                                            | 1,200                                                                                                                                                                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 1,200                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 |                                                   |         |                                                  |
|       | High ( 562)                | 9,700                                                                      | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .7/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,650                                             | 1,650   |                                                  |
|       | Low ( 286)                 | 9,700                                                                      | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .1/.2 | .1/.2 | .1/.2 | .7/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 1,600                                             | 1,600   |                                                  |
|       | Impact                     | *5,900                                                                     | .5/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,300                                             | 1,475   |                                                  |
| 100   |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|       |                            |                                                                            | 2,000                                                                                                                                                                  | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 2,000                  | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 |                                                   |         |                                                  |
|       | High ( 663)                | 12,400                                                                     | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .7/.8                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 2,175                                             | 2,175   |                                                  |
|       | Low ( 315)                 | 12,400                                                                     | .7/.8                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .7/.8                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 2,100                                             | 2,100   |                                                  |
|       | Impact                     | *7,400                                                                     | .5/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.6                  | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,725                                             | 1,725   |                                                  |
| 200   |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|       |                            |                                                                            | 2,400                                                                                                                                                                  | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | 2,400                  | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 |                                                   |         |                                                  |
|       | High ( 790)                | 16,300                                                                     | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 2,875                                             | 2,875   |                                                  |
|       | Low ( 502)                 | 16,300                                                                     | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 2,850                                             | 2,850   |                                                  |
|       | Impact                     | *9,300                                                                     | .6/.8                                                                                                                                                                  | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       |       | .6/.8                  | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       |       | 2,275                                             | 2,275   |                                                  |
| 500   |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|       |                            |                                                                            | 3,600                                                                                                                                                                  | 4,400 | 5,200 | 6,000 | 6,800 | 7,600 | 8,400 | 9,200 | 3,600                  | 4,400 | 5,200 | 6,000 | 6,800 | 7,600 | 8,400 | 9,200 |                                                   |         |                                                  |
|       | High (1,009)               | 22,800                                                                     | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9                  | .7/.9 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 4,150                                             | 4,150   |                                                  |
|       | Low ( 620)                 | 22,800                                                                     | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .8/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 4,100                                             | 4,100   |                                                  |
|       | Impact                     | *12,500                                                                    | .6/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 3,300                                             | 3,300   |                                                  |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.  
Low airburst—Precludes fallout.  
Impact burst—Produces fallout.

Figure 7.1.

\*Initial effects only. Fallout governs.

# **PROTECTED Personnel Targets Medium Guided Missile**

| Yield<br>KT | HOB option<br>(HOB-meters)<br><br>(See note) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>0</sub><br>(meters) |
|-------------|----------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|
|             |                                              |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                            | 300                                                                                                                                                                    | 400   | 500   | 600   | 700   | 800   | 900   | 1,000 | 800                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | Prompt                                            | Delayed |                                                  |
| 5           | High ( 355)                                  | 4,200                                                                      | .0/.4                                                                                                                                                                  | .0/.4 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .2/.5                  | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 425                                               | 675     | 915<br><br>(all<br>yields)                       |
|             | Low ( 227)                                   | 4,200                                                                      | .0/.5                                                                                                                                                                  | .0/.5 | .1/.5 | .1/.4 | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .3/.6                  | .3/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 525                                               | 750     |                                                  |
|             | Impact                                       | *3,100                                                                     | .1/.6                                                                                                                                                                  | .1/.5 | .1/.5 | .1/.5 | .2/.4 | .2/.4 | .2/.4 | .2/.3 | .3/.6                  | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 625                                               | 825     |                                                  |
| 10          |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                            | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 1,000                  | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 |                                                   |         |                                                  |
|             | High ( 402)                                  | 5,100                                                                      | .0/.5                                                                                                                                                                  | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 |       | .3/.5                  | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 500                                               | 775     |                                                  |
|             | Low ( 240)                                   | 5,100                                                                      | .1/.6                                                                                                                                                                  | .1/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | .3/.5                  | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 625                                               | 850     |                                                  |
|             | Impact                                       | *3,600                                                                     | .2/.6                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .4/.6                  | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 700                                               | 925     |                                                  |
| 20          |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                            | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 |       |       |                                                   |         |                                                  |
|             | High ( 461)                                  | 6,900                                                                      | .1/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .4/.7                  | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       |       | 575                                               | 850     |                                                  |
|             | Low ( 257)                                   | 6,900                                                                      | .2/.7                                                                                                                                                                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .4/.7                  | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 |       |       | 725                                               | 975     |                                                  |
|             | Impact                                       | *4,400                                                                     | .3/.7                                                                                                                                                                  | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .5/.7                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | 800                                               | 1,025   |                                                  |
| 50          |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                            | 800                                                                                                                                                                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |       |                                                   |         |                                                  |
|             | High ( 562)                                  | 9,700                                                                      | .2/.5                                                                                                                                                                  | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .5/.8                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | 650                                               | 975     |                                                  |
|             | Low ( 286)                                   | 9,700                                                                      | .4/.6                                                                                                                                                                  | .3/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.8                  | .5/.6 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | 850                                               | 1,125   |                                                  |
|             | Impact                                       | *5,900                                                                     | .4/.7                                                                                                                                                                  | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .6/.8                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       | 925                                               | 1,175   |                                                  |
| 100         |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                            | 800                                                                                                                                                                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |       | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 |                                                   |         |                                                  |
|             | High ( 663)                                  | 12,400                                                                     | .3/.6                                                                                                                                                                  | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       |       | .5/.8                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 850                                               | 1,050   |                                                  |
|             | Low ( 315)                                   | 12,400                                                                     | .5/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | .6/.9                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 975                                               | 1,250   |                                                  |
|             | Impact                                       | *7,400                                                                     | .5/.8                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 |       | .7/.9                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075                                             | 1,300   |                                                  |
| 200         |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                            | 1,200                                                                                                                                                                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |       |       | 1,200                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 |                                                   |         |                                                  |
|             | High ( 791)                                  | 16,300                                                                     | .4/.6                                                                                                                                                                  | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       |       | .5/.7                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | 1,050                                             | 1,150   |                                                  |
|             | Low ( 502)                                   | 16,300                                                                     | .4/.6                                                                                                                                                                  | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       |       | .6/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | 1,000                                             | 1,350   |                                                  |
|             | Impact                                       | *9,300                                                                     | .5/.6                                                                                                                                                                  | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       |       | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,150                                             | 1,450   |                                                  |
| 500         |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                            | 1,600                                                                                                                                                                  | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 1,600                  | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 |                                                   |         |                                                  |
|             | High (1,009)                                 | 22,800                                                                     | .5/.6                                                                                                                                                                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .5/.6                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 1,400                                             | 1,400   |                                                  |
|             | Low ( 620)                                   | 22,800                                                                     | .5/.6                                                                                                                                                                  | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       |       | .5/.7                  | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 1,350                                             | 1,475   |                                                  |
|             | Impact                                       | *12,500                                                                    | .6/.8                                                                                                                                                                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .6/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,675                                             | 1,675   |                                                  |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.  
Low airburst—Precludes fallout.  
Impact burst—Produces fallout.

\*Initial effects only. Fallout governs.

Figure 7.2.

MGM 1

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# **MATERIEL Targets** **Medium Guided Missile**

| Yield<br><br>KT | HOB option<br>(HOB-meters)<br><br>(See note) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>meters | FRACTION OF TARGET COVERED                                                                                                               |       |       |       |       |       |       |                                        |                                        |                        |       |       |       |       |                                        |                     | Offset<br>distance<br>d <sub>o</sub><br>(meters) |                                        |
|-----------------|----------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|----------------------------------------|----------------------------------------|------------------------|-------|-------|-------|-------|----------------------------------------|---------------------|--------------------------------------------------|----------------------------------------|
|                 |                                              |                                                                          | In the column under each target radius, the first figure is<br>the probable minimum coverage, the second figure is the average coverage. |       |       |       |       |       |       |                                        |                                        |                        |       |       |       |       |                                        |                     |                                                  |                                        |
|                 |                                              |                                                                          | WHEELED VEHICLES                                                                                                                         |       |       |       |       |       |       |                                        | TANKS AND ARTILLERY                    |                        |       |       |       |       |                                        |                     |                                                  |                                        |
|                 |                                              |                                                                          | Target radius (meters)                                                                                                                   |       |       |       |       |       |       |                                        | Target radius (meters)                 |                        |       |       |       |       |                                        |                     |                                                  |                                        |
|                 |                                              |                                                                          | 200                                                                                                                                      | 300   | 400   | 500   | 600   | 700   | 800   | Prob min<br>R <sub>D</sub><br>(meters) | 100                                    | 150                    |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) |                     |                                                  |                                        |
| 5               | High (355)                                   | 4,200                                                                    | .0/.1                                                                                                                                    |       |       |       |       |       |       | 0                                      | .0/0                                   |                        |       |       |       |       | 0                                      | 915 (all<br>yields) |                                                  |                                        |
|                 | Low (227)                                    | 4,200                                                                    | .0/.3                                                                                                                                    | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.1 |       | 175                                    | .0/.2                                  | .0/.1                  |       |       |       |       | 0                                      |                     |                                                  |                                        |
|                 | Impact                                       | *3,100                                                                   | .0/.3                                                                                                                                    | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | 325                                    | .0/.1                                  |                        |       |       |       |       | 225                                    |                     |                                                  |                                        |
| 10              |                                              |                                                                          | Target radius (meters)                                                                                                                   |       |       |       |       |       |       |                                        | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |                                        |                     |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|                 |                                              |                                                                          | 300                                                                                                                                      | 400   | 500   | 600   | 700   | 800   | 900   | 1,000                                  |                                        | 200                    | 300   | 400   | 500   | 600   |                                        |                     |                                                  |                                        |
|                 | High (402)                                   | 5,100                                                                    | .0/.2                                                                                                                                    | .0/.2 | .0/.2 | .0/.2 | .0/.1 |       |       |                                        | 0                                      | .0/0                   |       |       |       |       |                                        | 0                   |                                                  |                                        |
|                 | Low (240)                                    | 5,100                                                                    | .0/.5                                                                                                                                    | .0/.5 | .0/.5 | .0/.4 | .0/.4 | .0/.4 | .0/.3 | .0/.3                                  | 500                                    | .0/.2                  | .0/.2 | .0/.1 |       |       |                                        | 50                  |                                                  |                                        |
|                 | Impact                                       | *3,600                                                                   | .0/.4                                                                                                                                    | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .1/.2                                  | 450                                    | .0/.2                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |                                        | 300                 |                                                  |                                        |
| 20              |                                              |                                                                          | Target radius (meters)                                                                                                                   |       |       |       |       |       |       |                                        | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |                                        |                     |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|                 |                                              |                                                                          | 400                                                                                                                                      | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800                                  |                                        | 300                    | 400   | 500   | 600   | 700   | 800                                    | 900                 | 1,000                                            |                                        |
|                 | High (461)                                   | 6,900                                                                    | .0/.5                                                                                                                                    | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |                                        | 175                                    | .0/0                   |       |       |       |       |                                        |                     | 0                                                |                                        |
|                 | Low (257)                                    | 6,900                                                                    | .3/.7                                                                                                                                    | .3/.7 | .3/.6 | .3/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2                                  | 750                                    | .0/.3                  | .0/.2 | .0/.2 | .0/.2 | .0/.1 |                                        |                     | 175                                              |                                        |
|                 | Impact                                       | *4,400                                                                   | .1/.5                                                                                                                                    | .1/.4 | .1/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                        | 575                                    | .0/.3                  | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.2                                  | .1/.2               | .1/.1                                            | 400                                    |
| 50              |                                              |                                                                          | Target radius (meters)                                                                                                                   |       |       |       |       |       |       |                                        | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |                                        |                     |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|                 |                                              |                                                                          | 800                                                                                                                                      | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |                                        |                                        | 500                    | 600   | 700   | 800   | 900   | 1,000                                  | 1,100               | 1,200                                            |                                        |
|                 | High (562)                                   | 9,700                                                                    | .3/.6                                                                                                                                    | .2/.5 | .1/.3 | .0/.2 | .0/.2 | .0/.1 |       |                                        | 575                                    | .0/.1                  |       |       |       |       |                                        |                     | 0                                                |                                        |
|                 | Low (286)                                    | 9,700                                                                    | .6/.8                                                                                                                                    | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |                                        | 1,150                                  | .1/.5                  | .1/.5 | .1/.4 | .1/.4 | .1/.4 | .1/.3                                  | .1/.3               | .1/.3                                            | 450                                    |
|                 | Impact                                       | *5,900                                                                   | .3/.6                                                                                                                                    | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       |                                        | 850                                    | .1/.5                  | .1/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.3                                  | .1/.2               | .1/.2                                            | 550                                    |
| 100             |                                              |                                                                          | Target radius (meters)                                                                                                                   |       |       |       |       |       |       |                                        | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |                                        |                     |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|                 |                                              |                                                                          | 1,200                                                                                                                                    | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000                                  |                                        |                        | 600   | 800   | 1,000 | 1,200 | 1,400                                  | 1,600               | 1,800                                            | 2,000                                  |
|                 | High (663)                                   | 12,400                                                                   | .5/.7                                                                                                                                    | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                        | 1,200                                  | .0/.1                  |       |       |       |       |                                        |                     |                                                  | 75                                     |
|                 | Low (315)                                    | 12,400                                                                   | .7/.9                                                                                                                                    | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .1/.2                                  | 1,575                                  | .4/.7                  | .4/.6 | .3/.6 | .3/.5 | .2/.4 | .2/.3                                  | .1/.2               | .1/.2                                            | 750                                    |
|                 | Impact                                       | *7,400                                                                   | .4/.6                                                                                                                                    | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       |                                        | 1,100                                  | .2/.6                  | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2                                  | .1/.2               | .1/.1                                            | 725                                    |
| 200             |                                              |                                                                          | Target radius (meters)                                                                                                                   |       |       |       |       |       |       |                                        | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |                                        |                     |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|                 |                                              |                                                                          | 1,200                                                                                                                                    | 2,000 | 2,800 | 3,600 | 4,400 | 5,200 | 6,000 |                                        |                                        | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800                                  |                     |                                                  |                                        |
|                 | High (791)                                   | 16,300                                                                   | .8/.9                                                                                                                                    | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |                                        | 1,700                                  | .0/.2                  | .0/.1 |       |       |       |                                        |                     | 225                                              |                                        |
|                 | Low (502)                                    | 16,300                                                                   | .9/.9                                                                                                                                    | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |                                        | 2,025                                  | .4/.7                  | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1                                  |                     | 775                                              |                                        |
|                 | Impact                                       | *9,300                                                                   | .6/.8                                                                                                                                    | .4/.5 | .2/.3 | .1/.2 | .1/.1 |       |       |                                        | 1,450                                  | .4/.7                  | .3/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1                                  |                     | 975                                              |                                        |
| 500             |                                              |                                                                          | Target radius (meters)                                                                                                                   |       |       |       |       |       |       |                                        | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |                                        |                     |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|                 |                                              |                                                                          | 1,600                                                                                                                                    | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200                                  |                                        | 1,200                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200                                  | 3,600               | 4,000                                            |                                        |
|                 | High (1,009)                                 | 22,800                                                                   | .9/.9                                                                                                                                    | .8/.9 | .5/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1                                  | 2,575                                  | .1/.3                  | .1/.2 | .0/.1 |       |       |                                        |                     | 525                                              |                                        |
|                 | Low (620)                                    | 22,800                                                                   | .9/.9                                                                                                                                    | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2                                  | 3,000                                  | .7/.9                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.3                                  | .1/.2               | .1/.2                                            | 1,400                                  |
|                 | Impact                                       | *12,500                                                                  | .8/.9                                                                                                                                    | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 |       |                                        | 2,100                                  | .6/.8                  | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2                                  | .1/.2               | .1/.1                                            | 1,400                                  |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.  
Low airburst—Precludes fallout.  
Impact burst—Produces fallout.

\* Initial effects only. Fallout governs.

Figure 7.3.

MGM 1

# **Troop Safety Distances—Meters** **Medium Guided Missile**

| Range                                | Yield           | Height of burst option | Minimum Distance Required for Troop Vulnerability and Degree of Risk Shown |          |           |                |          |           |                  |          |           |
|--------------------------------------|-----------------|------------------------|----------------------------------------------------------------------------|----------|-----------|----------------|----------|-----------|------------------|----------|-----------|
|                                      |                 |                        | Unwarned Exposed                                                           |          |           | Warned Exposed |          |           | Warned Protected |          |           |
|                                      |                 |                        | NEG Risk                                                                   | MOD Risk | EMER Risk | NEG Risk       | MOD Risk | EMER Risk | NEG Risk         | MOD Risk | EMER Risk |
| All ranges from 50 km through 150 km | DELTA/ 5 KT     | High                   | 4,200                                                                      | 3,400    | 3,000     | 3,100          | 2,700    | 2,400     | 2,700            | 2,400    | 2,100     |
|                                      |                 | Low                    | 4,200                                                                      | 3,400    | 3,000     | 3,100          | 2,700    | 2,400     | 2,700            | 2,400    | 2,100     |
|                                      |                 | Impact <sup>1</sup>    | 3,100                                                                      | 2,700    | 2,400     | 3,100          | 2,700    | 2,400     | 2,700            | 2,400    | 2,200     |
|                                      | ECHO/ 10 KT     | High                   | 5,100                                                                      | 4,200    | 4,000     | 3,700          | 2,800    | 2,500     | 3,000            | 2,500    | 2,200     |
|                                      |                 | Low                    | 5,100                                                                      | 4,200    | 4,000     | 3,700          | 2,900    | 2,600     | 2,800            | 2,500    | 2,200     |
|                                      |                 | Impact <sup>1</sup>    | 3,600                                                                      | 2,900    | 2,600     | 3,200          | 2,900    | 2,600     | 2,800            | 2,500    | 2,300     |
|                                      | FOXTROT/ 20 KT  | High                   | 6,900                                                                      | 5,100    | 4,500     | 4,600          | 3,300    | 2,800     | 3,400            | 2,700    | 2,300     |
|                                      |                 | Low                    | 6,900                                                                      | 5,100    | 4,500     | 4,600          | 3,300    | 2,900     | 3,100            | 2,700    | 2,400     |
|                                      |                 | Impact <sup>1</sup>    | 4,400                                                                      | 3,500    | 3,100     | 3,300          | 3,000    | 2,700     | 2,900            | 2,700    | 2,400     |
|                                      | GOLF/ 50 KT     | High                   | 9,700                                                                      | 7,600    | 6,800     | 6,400          | 4,400    | 3,700     | 4,100            | 3,200    | 2,300     |
|                                      |                 | Low                    | 9,700                                                                      | 7,600    | 6,800     | 6,400          | 4,400    | 3,700     | 3,700            | 3,000    | 2,500     |
|                                      |                 | Impact <sup>1</sup>    | 5,900                                                                      | 4,800    | 4,300     | 4,200          | 3,300    | 2,900     | 3,400            | 2,800    | 2,600     |
|                                      | HOTEL/ 100 KT   | High                   | 12,400                                                                     | 10,000   | 8,300     | 8,300          | 5,700    | 4,700     | 4,800            | 3,700    | 2,700     |
|                                      |                 | Low                    | 12,400                                                                     | 10,000   | 8,300     | 8,300          | 5,700    | 4,700     | 4,300            | 3,400    | 2,700     |
|                                      |                 | Impact <sup>1</sup>    | 7,400                                                                      | 6,000    | 5,200     | 5,200          | 3,700    | 3,200     | 4,000            | 3,200    | 2,700     |
|                                      | INDIA/ 200 KT   | High                   | 16,300                                                                     | 12,900   | 11,500    | 10,900         | 7,500    | 6,100     | 5,700            | 4,300    | 3,000     |
|                                      |                 | Low                    | 16,300                                                                     | 12,900   | 11,500    | 10,900         | 7,500    | 6,100     | 5,300            | 4,100    | 2,800     |
|                                      |                 | Impact <sup>1</sup>    | 9,300                                                                      | 7,700    | 6,700     | 6,500          | 4,700    | 3,900     | 4,700            | 3,800    | 2,800     |
|                                      | JULIETT/ 500 KT | High                   | 22,800                                                                     | 18,800   | 16,600    | 15,400         | 10,400   | 8,400     | 7,200            | 5,400    | 3,600     |
|                                      |                 | Low                    | 22,800                                                                     | 18,800   | 16,600    | 15,400         | 10,400   | 8,400     | 6,700            | 5,100    | 3,300     |
|                                      |                 | Impact <sup>1</sup>    | 12,500                                                                     | 10,700   | 9,500     | 8,900          | 6,300    | 5,200     | 6,000            | 4,800    | 3,400     |

NOTE: The troop safety distances include the safety radius for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly disposition. See figure 7.5 for special friendly troop orientations.

<sup>1</sup>Initial effects only. Fallout governs.

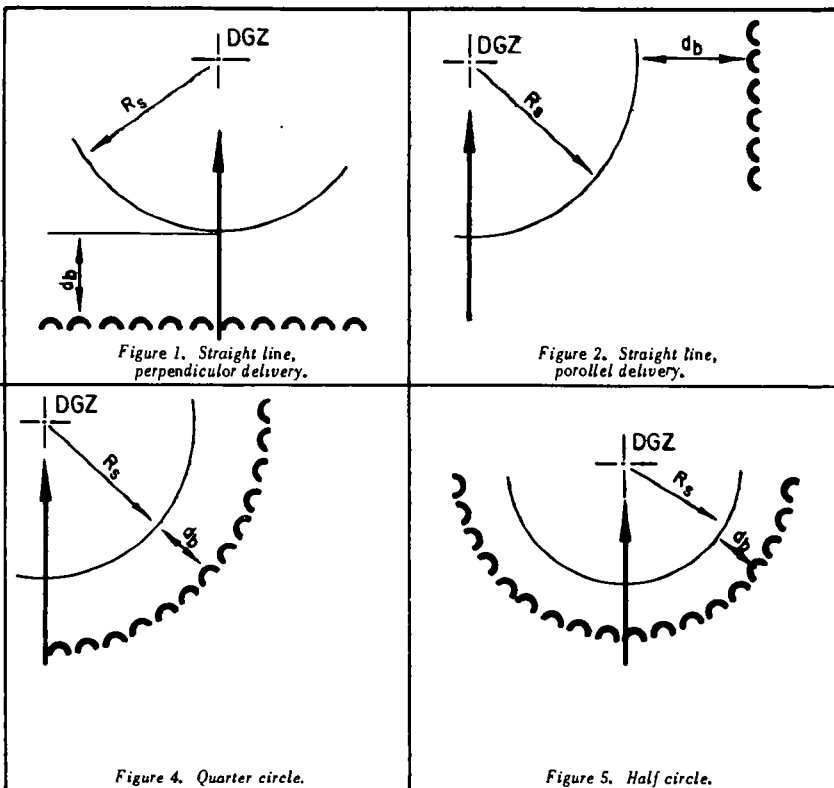
Figure 7.4.

# **SUPPLEMENTARY TROOP SAFETY Tables** **Medium Guided Missile**

The troop safety distances in figure 7.4 are based on the friendly troop orientation shown in figure 1, below. The circular delivery pattern of the medium guided missile may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

## **Special Troop Safety Orientations**

**LEGEND**  
 DGZ - Desired ground zero.  
 $R_s$  - Safety radius  
 $d_b$  - Buffer distance.  
 ~~~~~ - Friendly troops.  
 ➔ - Direction of fire.



When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figure 7.4 must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options - All Yields | | | | |
|--|--|---|------------------------------|---------------------------|
| Range
(meters) | Straight line,
parallel delivery
(fig 2) | Straight line,
45° delivery
(fig 3) | Quarter
circle
(fig 4) | Half
circle
(fig 5) |
| All
ranges | 0 | 0 | +200 | +300 |

Figure 7.5.

MGM 1

CASUALTY and DAMAGE Tables
Medium Guided Missile

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|-----------------------|---------|--------------------------------|---------|--------------------------------------|---------|-----------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in in APC's | | Personnel in in earth shelters | | Personnel in in multistory apt bldgs | | Personnel in in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,050 | | 0 | | | | | | | | | | | 3,025 | 2,150 | 1,700 | 1,750 | 1,350 | 875 | 1,225 | 875 | 350 |
| 1,025 | | 225 | | | | | | | | | | 0 | 3,025 | 2,150 | 1,700 | 1,750 | 1,350 | 900 | 1,250 | 900 | 425 |
| 1,000 | | 325 | | | | | | | | | | 175 | 3,025 | 2,150 | 1,725 | 1,775 | 1,375 | 925 | 1,275 | 925 | 475 |
| 975 | | 400 | | | | 150 | | | | | | 275 | 3,025 | 2,175 | 1,750 | 1,775 | 1,400 | 950 | 1,300 | 950 | 525 |
| 950 | | 450 | | | | 250 | | | | 0 | | 350 | 3,050 | 2,175 | 1,750 | 1,800 | 1,400 | 1,000 | 1,300 | 975 | 575 |
| 925 | | 500 | | | | 350 | | | | 200 | | 425 | 3,050 | 2,200 | 1,775 | 1,800 | 1,425 | 1,000 | 1,325 | 1,000 | 600 |
| 900 | | 550 | | | | 400 | | | | 300 | 0 | 475 | 3,050 | 2,200 | 1,775 | 1,825 | 1,450 | 1,025 | 1,350 | 1,025 | 650 |
| 875 | | 575 | | | | 450 | | | | 350 | 650 | 650 | 3,075 | 2,225 | 1,800 | 1,825 | 1,450 | 1,050 | 1,350 | 1,050 | 675 |
| 850 | | 625 | | | | 500 | | | | 400 | 750 | 750 | 3,075 | 2,225 | 1,800 | 1,850 | 1,475 | 1,075 | 1,375 | 1,075 | 700 |
| 825 | | 650 | | 0 | | 550 | | | | 450 | 850 | 850 | 3,075 | 2,225 | 1,800 | 1,850 | 1,500 | 1,100 | 1,400 | 1,075 | 725 |
| 800 | 0 | 675 | | 200 | | 575 | | | | 500 | 925 | 925 | 3,100 | 2,250 | 1,825 | 1,875 | 1,500 | 1,100 | 1,400 | 1,100 | 750 |
| 775 | 175 | 700 | | 275 | | 600 | | | | 550 | 975 | 975 | 3,100 | 2,250 | 1,825 | 1,875 | 1,525 | 1,125 | 1,425 | 1,125 | 800 |
| 750 | 275 | 725 | | 350 | 0 | 650 | | | | 775 | 1,050 | 1,050 | 3,100 | 2,275 | 1,850 | 1,900 | 1,525 | 1,150 | 1,425 | 1,150 | 800 |
| 725 | 325 | 750 | | 400 | 175 | 675 | | | 0 | 600 | 1,150 | 1,150 | 3,100 | 2,275 | 1,850 | 1,900 | 1,550 | 1,150 | 1,550 | 1,150 | 825 |
| 700 | 375 | 775 | | 425 | 250 | 700 | | | 150 | 625 | 1,300 | 1,300 | 3,125 | 2,275 | 1,875 | 1,900 | 1,550 | 1,175 | 1,700 | 1,175 | 850 |
| 675 | 425 | 800 | | 475 | 300 | 725 | | | 225 | 650 | 1,500 | 1,500 | 3,125 | 2,275 | 1,875 | 1,925 | 1,550 | 1,200 | 1,725 | 1,175 | 875 |
| 650 | 450 | 825 | | 500 | 350 | 750 | | 0 | 300 | 675 | 1,600 | 1,600 | 3,125 | 2,300 | 1,875 | 1,925 | 1,575 | 1,200 | 1,725 | 1,200 | 900 |
| 625 | 500 | 850 | 0 | 525 | 400 | 750 | | 175 | 350 | 700 | 1,625 | 1,625 | 3,125 | 2,300 | 1,900 | 1,925 | 1,575 | 1,225 | 1,725 | 1,200 | 925 |
| 600 | 525 | 850 | 150 | 550 | 450 | 775 | | 250 | 375 | 725 | 1,650 | 1,650 | 3,125 | 2,300 | 1,900 | 1,950 | 1,600 | 1,225 | 1,725 | 1,225 | 925 |
| 575 | 550 | 875 | 225 | 575 | 475 | 800 | | 300 | 425 | 750 | 1,650 | 1,650 | 3,150 | 2,300 | 1,900 | 1,950 | 1,600 | 1,250 | 1,725 | 1,225 | 950 |
| 550 | 575 | 900 | 300 | 600 | 500 | 825 | | 350 | 450 | 775 | 1,625 | 1,625 | 3,150 | 2,325 | 1,900 | 1,950 | 1,600 | 1,250 | 1,750 | 1,250 | 950 |
| 525 | 600 | 900 | 325 | 625 | 525 | 825 | | 375 | 525 | 775 | 1,625 | 1,625 | 3,150 | 2,325 | 1,925 | 1,950 | 1,625 | 1,275 | 1,725 | 1,250 | 975 |
| 500 | 625 | 925 | 375 | 650 | 550 | 850 | | 425 | 525 | 825 | 1,600 | 1,600 | 3,150 | 2,325 | 1,925 | 1,975 | 1,625 | 1,275 | 1,700 | 1,275 | 975 |
| 475 | 650 | 925 | 400 | 675 | 575 | 875 | 0 | 450 | 525 | 875 | 1,550 | 1,550 | 3,150 | 2,325 | 1,925 | 1,975 | 1,625 | 1,275 | 1,675 | 1,275 | 1,000 |
| 450 | 650 | 950 | 425 | 700 | 600 | 875 | 100 | 475 | 525 | 925 | 1,525 | 1,525 | 3,150 | 2,350 | 1,950 | 1,975 | 1,650 | 1,300 | 1,650 | 1,300 | 1,000 |
| 425 | 675 | 950 | 450 | 700 | 600 | 875 | 175 | 500 | 525 | 925 | 1,475 | 1,475 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,300 | 1,625 | 1,300 | 1,025 |
| 400 | 700 | 975 | 475 | 725 | 625 | 900 | 225 | 525 | 525 | 925 | 1,450 | 1,450 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,300 | 1,600 | 1,300 | 1,025 |
| 375 | 700 | 975 | 500 | 725 | 650 | 900 | 275 | 525 | 525 | 925 | 1,425 | 1,425 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,325 | 1,575 | 1,300 | 1,050 |
| 350 | 725 | 975 | 500 | 750 | 650 | 925 | 300 | 550 | 550 | 900 | 1,400 | 1,400 | 3,175 | 2,350 | 1,950 | 2,000 | 1,675 | 1,325 | 1,575 | 1,325 | 1,050 |
| 325 | 725 | 1,000 | 525 | 750 | 675 | 925 | 325 | 575 | 575 | 875 | 1,375 | 1,375 | 3,175 | 2,350 | 1,975 | 2,000 | 1,675 | 1,325 | 1,575 | 1,325 | 1,050 |
| 300 | 750 | 1,000 | 550 | 775 | 675 | 950 | 350 | 575 | 575 | 850 | 1,350 | 1,350 | 3,175 | 2,350 | 1,975 | 2,000 | 1,675 | 1,350 | 1,600 | 1,325 | 1,075 |
| 275 | 750 | 1,000 | 550 | 775 | 700 | 950 | 375 | 600 | 575 | 850 | 1,300 | 1,300 | 3,175 | 2,375 | 1,975 | 2,025 | 1,675 | 1,350 | 1,600 | 1,325 | 1,075 |
| 250 | 750 | 1,025 | 575 | 775 | 700 | 950 | 400 | 600 | 575 | 825 | 1,275 | 1,275 | 3,175 | 2,375 | 1,975 | 2,025 | 1,675 | 1,350 | 1,600 | 1,350 | 1,075 |
| 225 | 775 | 1,025 | 575 | 800 | 700 | 950 | 400 | 600 | 575 | 800 | 1,250 | 1,250 | 3,175 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,075 |
| 200 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 575 | 800 | 1,225 | 1,225 | 3,175 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 175 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 575 | 775 | 1,200 | 1,200 | 3,200 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 150 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 575 | 750 | 1,175 | 1,175 | 3,200 | 2,375 | 2,000 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 125 | 775 | 1,050 | 600 | 800 | 725 | 975 | 450 | 650 | 575 | 750 | 1,150 | 1,150 | 3,200 | 2,375 | 2,000 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 100 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 575 | 725 | 1,125 | 1,125 | 3,150 | 2,375 | 1,950 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 75 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 575 | 700 | 1,125 | 1,125 | 2,800 | 2,200 | 1,800 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 50 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 575 | 725 | 1,075 | 1,075 | 2,550 | 2,025 | 1,650 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |
| 25 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 575 | 725 | 1,075 | 1,075 | 2,275 | 1,850 | 1,525 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |
| 0 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 575 | 725 | 1,050 | 1,050 | 2,125 | 1,700 | 1,375 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |

HOB_{1a} = 52 mLow HOB_{min} = 91 mHigh HOB_{min} = 206 mHOB₉₉ = HOB_{1a} + 3.5 PE_h mHOB₉₈ = HOB_{1a} + 3.0 PE_h mHOB₉₀ = HOB_{1a} + 1.9 PE_h m

Figure 7.6a.

CASUALTY and DAMAGE Tables **Medium Guided Missile**

DELTA/5 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d Degree Burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,050 | | | | | | | 1,175 | | | 2,875 | | | 0-5 | | | | 0-500 | |
| 1,025 | | | | | | | 1,200 | | | 2,875 | | | 0-5 | | | | 0-550 | |
| 1,000 | | | | | | | 1,225 | | | 2,875 | | | 0-10 | | | | 0-600 | |
| 975 | | | | | | | 1,225 | | | 2,900 | | | 0-10 | | | | 0-600 | |
| 950 | | | | | | | 1,250 | | | 2,900 | | | 0-10 | | | | 0-650 | |
| 925 | | | | | | | 1,275 | | | 2,900 | | | 0-10 | | | | 0-700 | |
| 900 | | | | | | | 1,300 | | | 2,900 | | | 0-15 | | | | 0-750 | |
| 875 | | | | | | | 1,300 | | | 2,925 | | | 0-15 | | | | 0-750 | |
| 850 | | | | | | | 1,325 | | | 2,925 | | | 0-20 | | | | 0-800 | |
| 825 | | | | | | | 1,350 | | | 2,925 | | 0 | 0-20 | | 0 | | 0-800 | |
| 800 | | | | | | | 1,350 | | | 2,925 | | 0-5 | 0-25 | | | 0-50 | 0-850 | |
| 775 | | | | | | | 1,375 | | | 2,900 | | 0-5 | 0-30 | | | 0-200 | 0-850 | |
| 750 | | | | | | | 1,375 | 0 | | 2,900 | | 0-5 | 0-35 | | | 0-300 | 0-900 | |
| 725 | | | | | | | 1,400 | 75 | | 2,900 | | 0-5 | 0-45 | | | 0-350 | 0-900 | |
| 700 | | | | | | | 1,400 | 200 | | 2,900 | | 0-5 | 5-50 | | | 0-400 | 50-950 | |
| 675 | | | | | | | 1,425 | 275 | | 2,875 | | 0-10 | 5-65 | | | 0-450 | 200-950 | |
| 650 | | | | | | | 1,425 | 325 | | 2,875 | | 0-10 | 5-80 | | | 0-500 | 300-950 | |
| 625 | | | | | | | 1,450 | 375 | | 2,850 | | 0-10 | 5-100 | | | 0-500 | 350-1,000 | |
| 600 | | | | | | | 1,450 | 425 | | 2,850 | | 0-10 | 5-120 | | | 0-550 | 400-1,000 | |
| 575 | | | | | | | 1,475 | 450 | | 2,850 | 0 | 0-15 | 10-150 | | 0 | 0-600 | 400-1,000 | |
| 550 | | | | | | | 1,475 | 475 | | 2,825 | 0-5 | 0-20 | 10-190 | | 0-50 | 0-600 | 450-1,050 | |
| 525 | | | | | | | 1,475 | 500 | | 2,825 | 0-5 | 0-25 | 10-250 | | 0-200 | 0-650 | 450-1,050 | |
| 500 | | | | 0 | | | 1,500 | 525 | | 2,800 | 0-5 | 0-25 | 15-300 | | 0-250 | 0-650 | 500-1,050 | |
| 475 | | | | 50 | | | 1,500 | 550 | | 2,800 | 0-5 | 0-40 | 20-450 | | 0-300 | 0-650 | 550-1,050 | |
| 450 | | | | 100 | | | 1,500 | 575 | | 2,775 | 0-5 | 5-50 | 25-570 | | 0-300 | 50-700 | 550-1,100 | |
| 425 | | | | 150 | | | 1,525 | 600 | | 2,750 | 0-10 | 5-70 | 30-750 | | 0-350 | 150-700 | 600-1,100 | |
| 400 | 0 | | | 200 | | 0 | 1,525 | 600 | 0 | 2,725 | 0-10 | 5-90 | 40-1,000 | | 0-400 | 200-700 | 600-1,100 | |
| 375 | 50 | | | 250 | | 400 | 1,525 | 625 | 125 | 2,725 | 0-15 | 5-110 | 50-1,300 | | 0-400 | 250-750 | 600-1,100 | |
| 350 | 100 | | | 300 | | 425 | 1,525 | 650 | 175 | 2,700 | 0-15 | 10-140 | 70-1,600 | | 0-400 | 300-750 | 650-1,100 | |
| 325 | 150 | | 0 | 325 | | 425 | 1,550 | 650 | 225 | 2,675 | 0-20 | 10-165 | 80-1,980 | | 0-400 | 350-750 | 650-1,100 | |
| 300 | 250 | 0 | 50 | 350 | | 425 | 1,550 | 675 | 250 | 2,650 | 0-25 | 10-200 | 100-2,340 | | 0-450 | 350-750 | 650-1,150 | |
| 275 | 375 | 25 | 100 | 375 | | 450 | 1,550 | 675 | 275 | 2,625 | 0-25 | 10-240 | 120-2,820 | | 0-500 | 400-800 | 650-1,150 | |
| 250 | 400 | 75 | 150 | 400 | | 450 | 1,550 | 675 | 300 | 2,600 | 0-35 | 15-275 | 140-3,300 | | 0-500 | 400-800 | 700-1,150 | |
| 225 | 425 | 100 | 175 | 400 | | 450 | 1,550 | 700 | 325 | 2,575 | 0-35 | 15-325 | 160-3,900 | | 0-550 | 400-800 | 700-1,150 | |
| 200 | 450 | 125 | 200 | 425 | | 475 | 1,550 | 700 | 350 | 2,550 | 5-50 | 20-450 | 220-5,400 | | 50-550 | 450-800 | 700-1,150 | |
| 175 | 450 | 175 | 225 | 450 | 0 | 475 | 1,575 | 700 | 350 | 2,525 | 5-60 | 25-550 | 280-6,600 | 0 | 100-550 | 450-800 | 700-1,150 | 0 |
| 150 | 475 | 225 | 225 | 450 | 400 | 500 | 1,575 | 725 | 375 | 2,475 | 5-80 | 30-700 | 340-8,400 | 0-5 | 150-550 | 450-800 | 700-1,150 | 0-50 |
| 125 | 500 | 275 | 250 | 475 | 425 | 500 | 1,575 | 725 | 375 | 2,450 | 5-100 | 40-940 | 450-11,000 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-100 |
| 100 | 500 | 300 | 250 | 475 | 425 | 525 | 1,550 | 725 | 400 | 2,425 | 5-125 | 50-1,140 | 540-13,500 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-150 |
| 75 | 500 | 300 | 275 | 475 | 425 | 525 | 1,400 | 650 | 350 | 2,400 | 10-160 | 60-1,450 | 700-17,400 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-150 |
| 50 | 475 | 300 | 275 | 475 | 400 | 500 | 1,250 | 575 | 325 | 2,350 | FALLOUT COVERS | | | | | | | |
| 25 | 450 | 275 | 250 | 425 | 350 | 475 | 1,100 | 500 | 275 | 2,325 | | | | | | | | |
| 0 | 325 | 225 | 175 | 375 | 300 | 400 | 925 | 450 | 250 | 2,275 | | | | | | | | |

MGM 1

Figure 7.6a continued.

¹Medium Guided Missile.

CASUALTY and DAMAGE Tables
Medium Guided Missile

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,200 | | 0 | | | | | | | | | 600 | 600 | 3,850 | 2,975 | 2,700 | 2,375 | 1,375 | 925 | 1,275 | 900 | 100 |
| 1,150 | | 250 | | | | | | | | | 850 | 850 | 3,850 | 3,000 | 2,725 | 2,400 | 1,400 | 1,000 | 1,325 | 950 | 350 |
| 1,100 | | 400 | | | | | 0 | | | 0 | 1,000 | 1,000 | 3,875 | 3,000 | 2,750 | 2,425 | 1,450 | 1,050 | 1,375 | 1,025 | 500 |
| 1,050 | | 525 | | | | | 325 | | | 150 | 1,150 | 1,150 | 3,875 | 3,025 | 2,750 | 2,425 | 1,500 | 1,100 | 1,400 | 1,075 | 600 |
| 1,000 | | 625 | | | | | 450 | | | 350 | 1,300 | 1,300 | 3,900 | 3,050 | 2,775 | 2,450 | 1,525 | 1,150 | 1,500 | 1,125 | 675 |
| 950 | | 700 | | 0 | | | 550 | | | 475 | 1,500 | 1,500 | 3,900 | 3,050 | 2,800 | 2,475 | 1,550 | 1,200 | 1,650 | 1,150 | 750 |
| 900 | 0 | 750 | | 200 | | | 625 | | | 550 | 1,750 | 1,750 | 3,925 | 3,075 | 2,800 | 2,500 | 1,575 | 1,225 | 2,100 | 1,200 | 800 |
| 850 | 275 | 800 | | 350 | 0 | | 700 | | | 0 | 625 | 2,125 | 3,925 | 3,075 | 2,825 | 2,500 | 1,600 | 1,250 | 2,175 | 1,250 | 850 |
| 800 | 400 | 850 | | 450 | 300 | | 750 | | | 175 | 700 | 2,175 | 3,950 | 3,100 | 2,850 | 2,525 | 1,625 | 1,300 | 2,175 | 1,275 | 900 |
| 775 | 450 | 875 | | 500 | 350 | | 775 | | | 475 | 725 | 2,200 | 3,950 | 3,100 | 2,850 | 2,525 | 1,650 | 1,300 | 2,175 | 1,275 | 925 |
| 750 | 500 | 900 | | 550 | 400 | | 800 | 0 | | 550 | 750 | 2,200 | 3,950 | 3,100 | 2,850 | 2,550 | 1,650 | 1,325 | 2,175 | 1,325 | 950 |
| 725 | 525 | 925 | 0 | 575 | 450 | | 825 | 175 | | 625 | 775 | 2,200 | 3,950 | 3,125 | 2,850 | 2,550 | 1,675 | 1,350 | 2,175 | 1,400 | 950 |
| 700 | 550 | 950 | 100 | 600 | 475 | | 850 | 250 | | 675 | 800 | 2,175 | 3,975 | 3,125 | 2,875 | 2,550 | 1,675 | 1,350 | 2,225 | 1,475 | 975 |
| 675 | 600 | 950 | 200 | 625 | 525 | | 875 | 325 | | 725 | 825 | 2,175 | 3,975 | 3,125 | 2,875 | 2,550 | 1,700 | 1,350 | 2,200 | 1,500 | 1,000 |
| 650 | 625 | 975 | 275 | 650 | 550 | | 875 | 375 | 1,200 | 1,200 | 2,150 | 2,150 | 3,975 | 3,150 | 2,875 | 2,575 | 1,700 | 1,375 | 2,175 | 1,475 | 1,000 |
| 625 | 650 | 1,000 | 325 | 675 | 575 | | 900 | 400 | 1,225 | 1,225 | 2,125 | 2,125 | 3,975 | 3,150 | 2,875 | 2,575 | 1,700 | 1,400 | 2,150 | 1,475 | 1,025 |
| 600 | 650 | 1,000 | 375 | 700 | 600 | | 925 | 450 | 1,250 | 1,250 | 2,100 | 2,100 | 3,975 | 3,150 | 2,900 | 2,575 | 1,725 | 1,400 | 2,125 | 1,450 | 1,050 |
| 575 | 675 | 1,025 | 400 | 725 | 625 | | 950 | 475 | 1,275 | 1,275 | 2,075 | 2,075 | 3,975 | 3,150 | 2,900 | 2,600 | 1,725 | 1,400 | 2,100 | 1,425 | 1,050 |
| 550 | 700 | 1,025 | 450 | 750 | 650 | | 950 | 0 | 500 | 1,275 | 1,275 | 2,050 | 3,975 | 3,150 | 2,900 | 2,600 | 1,725 | 1,425 | 2,075 | 1,425 | 1,075 |
| 525 | 725 | 1,050 | 475 | 750 | 675 | | 975 | 150 | 525 | 1,250 | 1,250 | 2,080 | 4,000 | 3,150 | 2,900 | 2,600 | 1,750 | 1,425 | 2,025 | 1,425 | 1,075 |
| 500 | 825 | 1,050 | 500 | 775 | 675 | | 975 | 225 | 550 | 1,250 | 1,250 | 1,975 | 4,000 | 3,175 | 2,900 | 2,600 | 1,750 | 1,450 | 2,000 | 1,425 | 1,100 |
| 475 | 850 | 1,075 | 525 | 800 | 700 | | 1,000 | 275 | 575 | 1,225 | 1,225 | 1,950 | 4,000 | 3,175 | 2,925 | 2,600 | 1,750 | 1,450 | 1,950 | 1,425 | 1,100 |
| 450 | 850 | 1,075 | 550 | 800 | 725 | | 1,000 | 300 | 600 | 1,200 | 1,200 | 1,900 | 4,000 | 3,175 | 2,925 | 2,600 | 1,750 | 1,450 | 1,925 | 1,425 | 1,125 |
| 425 | 850 | 1,100 | 575 | 825 | 725 | | 1,025 | 350 | 625 | 1,175 | 1,175 | 1,850 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,450 | 1,875 | 1,450 | 1,125 |
| 400 | 850 | 1,100 | 575 | 825 | 750 | | 1,025 | 375 | 625 | 1,175 | 1,175 | 1,825 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,475 | 1,850 | 1,450 | 1,125 |
| 375 | 875 | 1,100 | 600 | 850 | 750 | | 1,025 | 400 | 650 | 1,150 | 1,150 | 1,775 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,475 | 1,800 | 1,450 | 1,150 |
| 350 | 875 | 1,125 | 625 | 850 | 775 | | 1,050 | 425 | 650 | 1,125 | 1,125 | 1,750 | 4,000 | 3,175 | 2,925 | 2,625 | 1,800 | 1,475 | 1,750 | 1,450 | 1,150 |
| 325 | 875 | 1,125 | 650 | 850 | 775 | | 1,050 | 450 | 675 | 1,100 | 1,100 | 1,700 | 4,025 | 3,175 | 2,950 | 2,625 | 1,800 | 1,475 | 1,725 | 1,475 | 1,150 |
| 300 | 875 | 1,125 | 650 | 875 | 800 | | 1,050 | 450 | 675 | 1,075 | 1,075 | 1,650 | 4,025 | 3,175 | 2,950 | 2,625 | 1,800 | 1,500 | 1,725 | 1,475 | 1,175 |
| 275 | 875 | 1,150 | 650 | 875 | 800 | | 1,075 | 475 | 700 | 1,075 | 1,075 | 1,625 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,725 | 1,475 | 1,175 |
| 250 | 875 | 1,150 | 650 | 900 | 800 | | 1,075 | 475 | 700 | 1,050 | 1,050 | 1,600 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,475 | 1,175 |
| 225 | 875 | 1,150 | 675 | 900 | 825 | | 1,075 | 500 | 700 | 1,025 | 1,025 | 1,575 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,475 | 1,175 |
| 200 | 875 | 1,150 | 675 | 900 | 825 | | 1,075 | 500 | 725 | 1,025 | 1,050 | 1,550 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 175 | 875 | 1,150 | 700 | 900 | 825 | | 1,075 | 525 | 725 | 1,000 | 1,050 | 1,500 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 150 | 875 | 1,150 | 700 | 900 | 825 | | 1,100 | 525 | 725 | 975 | 1,050 | 1,475 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,500 | 1,200 |
| 125 | 875 | 1,175 | 700 | 900 | 850 | | 1,100 | 525 | 725 | 975 | 1,050 | 1,450 | 3,800 | 3,050 | 2,850 | 2,600 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 100 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 525 | 750 | 950 | 1,050 | 1,425 | 3,575 | 2,825 | 2,600 | 2,525 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 75 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 550 | 750 | 925 | 1,050 | 1,400 | 3,325 | 2,600 | 2,350 | 2,450 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 50 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 550 | 750 | 900 | 1,050 | 1,375 | 3,075 | 2,350 | 2,180 | 2,350 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 25 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 550 | 750 | 900 | 1,050 | 1,350 | 2,850 | 2,125 | 1,850 | 2,275 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |
| 0 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 550 | 750 | 875 | 1,050 | 1,325 | 2,575 | 1,875 | 1,600 | 2,175 | 1,825 | 1,525 | 1,750 | 1,500 | 1,200 |

HOB_{fs} = 65 mLow HOB_{min} = 115 mHigh HOB_{min} = 259 mHOB₉₀ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 7.6b.

CASUALTY and DAMAGE Tables Medium Guided Missile

ECHO/10 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,200 | | | | | | | 1,775 | | | 3,650 | | | 0-5 | | | | 0-650 | |
| 1,150 | | | | | | | 1,825 | | | 3,675 | | | 0-5 | | | | 0-750 | |
| 1,100 | | | | | | | 1,850 | | | 3,675 | | | 0-10 | | | | 0-800 | |
| 1,050 | | | | | | | 1,875 | 0 | | 3,675 | | | 0-10 | | | | 0-850 | |
| 1,000 | | | | | | | 1,900 | 150 | | 3,675 | | | 0-15 | | | | 0-950 | |
| 950 | | | | | | | 1,925 | 350 | | 3,675 | | 0 | 0-20 | | | 0 | 0-1,000 | |
| 900 | | | | | | | 1,950 | 450 | | 3,650 | | 0-5 | 0-25 | | | 0-50 | 0-1,050 | |
| 850 | | | | | | | 1,975 | 550 | | 3,625 | | 0-5 | 0-35 | | | 0-350 | 0-1,050 | |
| 800 | | | | | | | 2,000 | 625 | | 3,600 | | 0-5 | 5-45 | | | 0-450 | 50-1,100 | |
| 775 | | | | | | | 2,000 | 650 | | 3,600 | | 0-5 | 5-55 | | | 0-500 | 200-1,150 | |
| 750 | | | | | | | 2,025 | 675 | | 3,600 | | 0-10 | 5-70 | | | 0-550 | 300-1,150 | |
| 725 | | | | | | | 2,025 | 700 | | 3,575 | | 0-10 | 5-85 | | | 0-550 | 350-1,150 | |
| 700 | | | | | | | 2,025 | 725 | | 3,575 | | 0-10 | 5-100 | | | 0-600 | 400-1,200 | |
| 675 | | | | | | | 2,050 | 750 | | 3,550 | | 0-15 | 5-125 | | | 0-600 | 450-1,200 | |
| 650 | | | | | | | 2,050 | 775 | | 3,550 | | 0-15 | 10-160 | | | 0-650 | 500-1,200 | |
| 625 | | | | 0 | | | 2,050 | 800 | | 3,525 | 0 | 0-20 | 10-200 | | 0 | 0-700 | 500-1,200 | |
| 600 | | | | 50 | | | 2,075 | 800 | | 3,525 | 0-5 | 0-20 | 10-240 | | 0-50 | 0-700 | 550-1,250 | |
| 575 | | | | 125 | | | 2,075 | 825 | | 3,500 | 0-5 | 0-25 | 15-300 | | 0-200 | 0-700 | 600-1,250 | |
| 550 | | | | 175 | | | 2,075 | 850 | 0 | 3,475 | 0-5 | 0-35 | 15-380 | | 0-250 | 0-750 | 600-1,250 | |
| 525 | | | | 225 | | | 2,075 | 875 | 125 | 3,450 | 0-5 | 0-45 | 20-500 | | 0-300 | 0-750 | 650-1,250 | |
| 500 | 0 | | | 275 | | | 2,100 | 875 | 200 | 3,450 | 0-10 | 5-50 | 25-600 | | 0-350 | 50-800 | 650-1,300 | |
| 475 | 50 | | | 325 | | 0 | 2,100 | 900 | 250 | 3,425 | 0-10 | 5-75 | 40-900 | | 0-400 | 150-800 | 650-1,300 | |
| 450 | 125 | | | 375 | | 575 | 2,100 | 900 | 300 | 3,400 | 0-15 | 5-100 | 50-1,140 | | 0-400 | 250-800 | 700-1,300 | |
| 425 | 175 | | 0 | 400 | | 600 | 2,100 | 925 | 325 | 3,375 | 0-15 | 5-125 | 60-1,500 | | 0-450 | 300-800 | 700-1,300 | |
| 400 | 225 | | 25 | 425 | | 600 | 2,125 | 925 | 375 | 3,350 | 0-20 | 10-170 | 80-1,980 | | 0-450 | 300-850 | 700-1,300 | |
| 375 | 350 | 0 | 75 | 475 | | 600 | 2,125 | 950 | 400 | 3,325 | 0-25 | 10-220 | 120-2,600 | | 0-500 | 350-850 | 750-1,300 | |
| 350 | 475 | 25 | 125 | 475 | | 625 | 2,125 | 950 | 400 | 3,300 | 0-30 | 15-270 | 140-3,200 | | 0-500 | 400-850 | 750-1,350 | |
| 325 | 500 | 75 | 175 | 500 | | 625 | 2,125 | 950 | 425 | 3,275 | 0-40 | 15-330 | 160-3,960 | | 0-500 | 400-850 | 750-1,350 | |
| 300 | 550 | 100 | 200 | 525 | | 625 | 2,125 | 975 | 450 | 3,250 | 5-45 | 20-390 | 200-4,680 | | 50-550 | 400-850 | 750-1,350 | |
| 275 | 575 | 150 | 250 | 550 | | 625 | 2,125 | 975 | 475 | 3,225 | 5-55 | 20-470 | 230-5,650 | 0 | 150-550 | 450-900 | 800-1,350 | 0 |
| 250 | 575 | 175 | 275 | 550 | | 625 | 2,125 | 975 | 475 | 3,200 | 5-65 | 25-550 | 270-6,600 | 0-5 | 200-550 | 450-900 | 800-1,350 | 0-50 |
| 225 | 600 | 225 | 275 | 575 | 0 | 650 | 2,150 | 975 | 500 | 3,175 | 5-75 | 30-650 | 320-7,800 | 0-5 | 200-600 | 450-900 | 800-1,350 | 0-150 |
| 200 | 625 | 275 | 300 | 600 | 450 | 650 | 2,150 | 1,000 | 500 | 3,150 | 5-100 | 40-900 | 440-10,800 | 0-5 | 250-600 | 500-900 | 800-1,350 | 0-150 |
| 175 | 650 | 350 | 325 | 600 | 525 | 650 | 2,150 | 1,000 | 500 | 3,125 | 5-125 | 50-1,100 | 540-13,200 | 0-5 | 250-600 | 500-900 | 800-1,350 | 0-200 |
| 150 | 650 | 375 | 325 | 625 | 550 | 650 | 2,150 | 1,000 | 525 | 3,075 | 10-160 | 60-1,400 | 680-16,800 | 0-5 | 300-600 | 500-900 | 800-1,350 | 0-200 |
| 125 | 650 | 375 | 350 | 625 | 575 | 650 | 2,075 | 975 | 525 | 3,050 | 10-200 | 75-1,850 | 900-22,200 | 0-5 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 100 | 650 | 375 | 350 | 650 | 575 | 650 | 1,900 | 900 | 475 | 3,025 | 10-250 | 90-2,250 | 1,080-27,000 | 0-10 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 75 | 650 | 400 | 375 | 625 | 575 | 650 | 1,750 | 825 | 450 | 2,975 | 15-320 | 120-2,900 | 1,400-34,800 | 0-10 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 50 | 625 | 375 | 350 | 600 | 525 | 625 | 1,575 | 750 | 400 | 2,950 | FALLOUT GOVERNS | | | | | | | |
| 25 | 550 | 350 | 300 | 575 | 500 | 575 | 1,425 | 675 | 375 | 2,900 | | | | | | | | |
| 0 | 450 | 300 | 250 | 500 | 425 | 500 | 1,250 | 600 | 325 | 2,875 | | | | | | | | |

MGM 1

Figure 7.6b continued.

CASUALTY and DAMAGE Tables
Medium Guided Missile

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,200 | | 400 | | | | 250 | | | | 0 | 1,600 | 1,600 | 5,725 | 3,850 | 3,275 | 3,350 | 1,950 | 1,375 | 2,050 | 1,075 | 575 |
| 1,150 | | 525 | | | | 425 | | | | 250 | 1,750 | 1,750 | 5,725 | 3,875 | 3,300 | 3,375 | 1,975 | 1,425 | 2,475 | 1,125 | 675 |
| 1,100 | | 625 | | | | 550 | | | | 425 | 1,950 | 1,950 | 5,750 | 3,875 | 3,325 | 3,400 | 2,000 | 1,450 | 2,700 | 1,150 | 750 |
| 1,050 | | 700 | | 0 | | 625 | | | | 525 | 2,350 | 2,350 | 5,750 | 3,900 | 3,350 | 3,400 | 2,025 | 1,500 | 2,750 | 1,275 | 825 |
| 1,000 | 0 | 775 | | 225 | 0 | 700 | | | 0 | 625 | 2,625 | 2,625 | 5,750 | 3,900 | 3,350 | 3,425 | 2,050 | 1,525 | 2,750 | 1,400 | 875 |
| 950 | 300 | 825 | | 400 | 175 | 775 | | | 475 | 700 | 2,675 | 2,675 | 5,775 | 3,925 | 3,375 | 3,425 | 2,075 | 1,550 | 2,750 | 1,650 | 925 |
| 900 | 425 | 875 | | 500 | 350 | 825 | | | 625 | 750 | 2,700 | 2,700 | 5,775 | 3,925 | 3,375 | 3,450 | 2,100 | 1,600 | 2,750 | 1,800 | 975 |
| 850 | 525 | 925 | | 575 | 450 | 875 | | 0 | 800 | 825 | 2,700 | 2,700 | 5,775 | 3,950 | 3,400 | 3,475 | 2,125 | 1,625 | 2,775 | 1,875 | 1,025 |
| 800 | 600 | 975 | 0 | 650 | 550 | 925 | | 275 | 1,150 | 1,150 | 2,650 | 2,650 | 5,800 | 3,950 | 3,400 | 3,475 | 2,150 | 1,650 | 2,725 | 1,850 | 1,075 |
| 775 | 625 | 1,000 | 200 | 675 | 575 | 950 | | 350 | 1,450 | 1,450 | 2,650 | 2,650 | 5,800 | 3,950 | 3,425 | 3,475 | 2,150 | 1,650 | 2,700 | 1,850 | 1,075 |
| 750 | 650 | 1,025 | 275 | 700 | 600 | 975 | | 400 | 1,525 | 1,525 | 2,625 | 2,625 | 5,800 | 3,950 | 3,425 | 3,475 | 2,150 | 1,675 | 2,675 | 1,825 | 1,100 |
| 725 | 675 | 1,025 | 325 | 725 | 625 | 975 | | 450 | 1,550 | 1,550 | 2,575 | 2,575 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,675 | 2,650 | 1,800 | 1,125 |
| 700 | 700 | 1,050 | 400 | 750 | 675 | 1,000 | | 475 | 1,550 | 1,550 | 2,525 | 2,525 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,700 | 2,600 | 1,800 | 1,125 |
| 675 | 725 | 1,075 | 425 | 775 | 700 | 1,025 | | 525 | 1,525 | 1,525 | 2,475 | 2,475 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,700 | 2,575 | 1,775 | 1,150 |
| 650 | 1,000 | 1,075 | 475 | 800 | 725 | 1,050 | 0 | 550 | 1,525 | 1,525 | 2,450 | 2,450 | 5,825 | 3,975 | 3,450 | 3,500 | 2,200 | 1,700 | 2,550 | 1,750 | 1,150 |
| 625 | 1,100 | 1,100 | 500 | 825 | 725 | 1,050 | 125 | 575 | 1,525 | 1,525 | 2,400 | 2,400 | 5,825 | 3,975 | 3,450 | 3,500 | 2,200 | 1,725 | 2,500 | 1,725 | 1,175 |
| 600 | 1,125 | 1,125 | 525 | 825 | 750 | 1,075 | 200 | 600 | 1,500 | 1,500 | 2,350 | 2,350 | 5,825 | 3,975 | 3,450 | 3,525 | 2,200 | 1,725 | 2,475 | 1,700 | 1,200 |
| 575 | 1,125 | 1,125 | 550 | 850 | 775 | 1,075 | 275 | 625 | 1,500 | 1,500 | 2,325 | 2,325 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,425 | 1,675 | 1,200 |
| 550 | 1,150 | 1,150 | 575 | 875 | 800 | 1,100 | 325 | 650 | 1,475 | 1,475 | 2,275 | 2,275 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,400 | 1,650 | 1,225 |
| 525 | 1,150 | 1,150 | 600 | 875 | 800 | 1,100 | 350 | 675 | 1,450 | 1,450 | 2,250 | 2,250 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,350 | 1,625 | 1,225 |
| 500 | 1,150 | 1,150 | 625 | 900 | 825 | 1,125 | 400 | 700 | 1,425 | 1,425 | 2,200 | 2,200 | 5,825 | 4,000 | 3,475 | 3,525 | 2,225 | 1,750 | 2,300 | 1,600 | 1,225 |
| 475 | 1,150 | 1,175 | 650 | 900 | 850 | 1,125 | 425 | 700 | 1,400 | 1,400 | 2,175 | 2,175 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,275 | 1,575 | 1,250 |
| 450 | 1,150 | 1,175 | 650 | 925 | 850 | 1,150 | 450 | 725 | 1,375 | 1,375 | 2,150 | 2,150 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,225 | 1,550 | 1,250 |
| 425 | 1,150 | 1,175 | 675 | 925 | 875 | 1,150 | 475 | 750 | 1,350 | 1,350 | 2,100 | 2,100 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,175 | 1,550 | 1,275 |
| 400 | 1,150 | 1,200 | 700 | 950 | 875 | 1,150 | 500 | 750 | 1,350 | 1,350 | 2,075 | 2,075 | 5,825 | 4,000 | 3,475 | 3,550 | 2,250 | 1,775 | 2,125 | 1,550 | 1,275 |
| 375 | 1,150 | 1,200 | 700 | 950 | 875 | 1,175 | 525 | 775 | 1,325 | 1,325 | 2,050 | 2,050 | 5,850 | 4,025 | 3,475 | 3,550 | 2,250 | 1,800 | 2,100 | 1,575 | 1,275 |
| 350 | 1,150 | 1,200 | 725 | 975 | 900 | 1,175 | 525 | 775 | 1,300 | 1,300 | 2,025 | 2,025 | 5,850 | 4,025 | 3,475 | 3,550 | 2,250 | 1,800 | 2,050 | 1,575 | 1,275 |
| 325 | 1,150 | 1,225 | 725 | 975 | 900 | 1,175 | 550 | 775 | 1,275 | 1,275 | 1,975 | 1,975 | 5,850 | 4,025 | 3,475 | 3,550 | 2,275 | 1,800 | 2,025 | 1,575 | 1,300 |
| 300 | 1,150 | 1,225 | 750 | 975 | 925 | 1,175 | 550 | 800 | 1,275 | 1,275 | 1,950 | 1,950 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 2,000 | 1,575 | 1,300 |
| 275 | 1,150 | 1,225 | 750 | 1,000 | 925 | 1,200 | 575 | 800 | 1,250 | 1,250 | 1,925 | 1,925 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 1,950 | 1,575 | 1,300 |
| 250 | 1,150 | 1,225 | 750 | 1,000 | 925 | 1,200 | 575 | 825 | 1,225 | 1,225 | 1,900 | 1,900 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 1,925 | 1,600 | 1,300 |
| 225 | 1,150 | 1,250 | 775 | 1,000 | 950 | 1,200 | 600 | 825 | 1,225 | 1,225 | 1,875 | 1,875 | 5,850 | 4,025 | 3,500 | 3,500 | 2,275 | 1,825 | 1,900 | 1,600 | 1,325 |
| 200 | 1,150 | 1,250 | 775 | 1,000 | 950 | 1,200 | 600 | 825 | 1,200 | 1,200 | 1,850 | 1,850 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,825 | 1,875 | 1,600 | 1,325 |
| 175 | 1,125 | 1,250 | 775 | 1,000 | 950 | 1,200 | 625 | 825 | 1,175 | 1,175 | 1,825 | 1,825 | 5,725 | 3,925 | 3,400 | 3,500 | 2,200 | 1,800 | 1,825 | 1,600 | 1,325 |
| 150 | 1,125 | 1,250 | 800 | 1,000 | 950 | 1,225 | 625 | 850 | 1,175 | 1,175 | 1,800 | 1,800 | 5,400 | 3,725 | 3,200 | 3,325 | 2,225 | 1,775 | 1,850 | 1,600 | 1,325 |
| 125 | 1,100 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,150 | 1,175 | 1,775 | 1,775 | 5,100 | 3,525 | 3,000 | 3,150 | 2,175 | 1,750 | 1,850 | 1,600 | 1,325 |
| 100 | 1,075 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,150 | 1,175 | 1,750 | 1,750 | 4,750 | 3,300 | 2,800 | 2,975 | 2,150 | 1,725 | 1,850 | 1,600 | 1,325 |
| 75 | 1,050 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,125 | 1,175 | 1,725 | 1,725 | 4,500 | 3,100 | 2,625 | 2,750 | 2,100 | 1,700 | 1,875 | 1,600 | 1,325 |
| 50 | 1,025 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,125 | 1,175 | 1,700 | 1,700 | 4,100 | 2,875 | 2,425 | 2,600 | 2,050 | 1,675 | 1,875 | 1,600 | 1,325 |
| 25 | 1,000 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,100 | 1,175 | 1,675 | 1,675 | 3,750 | 2,675 | 2,250 | 2,425 | 2,025 | 1,650 | 1,875 | 1,600 | 1,325 |
| 0 | 1,000 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,100 | 1,175 | 1,675 | 1,675 | 3,375 | 2,475 | 2,050 | 2,275 | 1,975 | 1,625 | 1,875 | 1,600 | 1,325 |

HOB_{fs} = 82 m
 Low HOB_{min} = 144 m
 High HOB_{min} = 326 m
 HOB₉₉ = HOB_{fs} + 3.5 PE_h m
 HOB₉₈ = HOB_{fs} + 3.0 PE_h m
 HOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 7.6c.

CASUALTY and DAMAGE Tables Medium Guided Missile

FOXTROT/20 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|-------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
depts | Severe
dam
radios
and elec
equip | Severe
dam
Hwy and
RR
brgs | Severe
dam
float
brgs | 2d degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,200 | | | | | | | 2,625 | 650 | | 4,625 | | | 0-10 | | | | 0-750 | |
| 1,150 | | | | | | | 2,650 | 750 | | 4,600 | | | 0-10 | | | | 0-800 | |
| 1,100 | | | | | | | 2,675 | 825 | | 4,600 | | | 0-15 | | | | 0-900 | |
| 1,050 | | | | | | | 2,700 | 875 | | 4,575 | | 0 | 0-20 | | | 0 | 0-950 | |
| 1,000 | | | | | | | 2,700 | 925 | | 4,550 | | 0-5 | 0-25 | | | 0-50 | 0-1,000 | |
| 950 | | | | | | | 2,725 | 975 | | 4,525 | | 0-5 | 0-35 | | | 0-300 | 0-1,050 | |
| 900 | | | | | | | 2,750 | 1,025 | | 4,500 | | 0-5 | 5-45 | | | 0-450 | 50-1,100 | |
| 850 | | | | | | | 2,750 | 1,075 | | 4,475 | | 0-10 | 5-65 | | | 0-550 | 350-1,150 | |
| 800 | | | | 0 | | | 2,775 | 1,100 | | 4,450 | | 0-10 | 5-90 | | | 0-600 | 450-1,150 | |
| 775 | | | | 25 | | | 2,775 | 1,125 | | 4,450 | 0 | 0-10 | 5-110 | | 0 | 0-650 | 500-1,200 | |
| 750 | | | | 75 | | | 2,800 | 1,150 | 0 | 4,425 | 0-5 | 0-15 | 10-140 | | 0-50 | 0-700 | 550-1,200 | |
| 725 | | | | 150 | | | 2,800 | 1,150 | 75 | 4,400 | 0-5 | 0-15 | 10-170 | | 0-200 | 0-700 | 550-1,200 | |
| 700 | | | | 225 | | | 2,800 | 1,175 | 200 | 4,400 | 0-5 | 0-20 | 10-200 | | 0-300 | 0-750 | 600-1,250 | |
| 675 | | | | 275 | | | 2,800 | 1,200 | 275 | 4,375 | 0-5 | 0-25 | 10-250 | | 0-350 | 0-750 | 600-1,250 | |
| 650 | | | | 325 | | | 2,825 | 1,200 | 325 | 4,350 | 0-5 | 0-30 | 15-320 | | 0-400 | 0-800 | 650-1,250 | |
| 625 | 0 | | | 375 | | 0 | 2,825 | 1,225 | 375 | 4,325 | 0-5 | 0-35 | 20-390 | | 0-450 | 0-800 | 700-1,300 | |
| 600 | 75 | | | 425 | | 750 | 2,825 | 1,225 | 425 | 4,325 | 0-5 | 5-40 | 20-480 | | 0-450 | 50-800 | 700-1,300 | |
| 575 | 125 | | | 475 | | 775 | 2,825 | 1,250 | 450 | 4,300 | 0-10 | 5-50 | 25-590 | | 0-500 | 200-850 | 700-1,300 | |
| 550 | 200 | | | 525 | | 775 | 2,825 | 1,250 | 475 | 4,275 | 0-10 | 5-65 | 30-750 | | 0-550 | 250-850 | 750-1,300 | |
| 525 | 250 | | 0 | 550 | | 775 | 2,850 | 1,275 | 500 | 4,250 | 0-10 | 5-85 | 40-990 | | 0-600 | 300-900 | 750-1,350 | |
| 500 | 325 | | 25 | 575 | | 775 | 2,850 | 1,275 | 525 | 4,225 | 0-15 | 5-100 | 50-1,200 | | 0-600 | 350-900 | 800-1,350 | |
| 475 | 425 | 0 | 100 | 600 | | 775 | 2,850 | 1,275 | 550 | 4,200 | 0-20 | 10-150 | 75-1,800 | | 0-600 | 400-900 | 800-1,350 | |
| 450 | 600 | 25 | 150 | 625 | 0 | 800 | 2,850 | 1,300 | 575 | 4,175 | 0-25 | 10-190 | 100-2,280 | | 0-600 | 400-900 | 800-1,350 | |
| 425 | 675 | 75 | 200 | 650 | 550 | 800 | 2,850 | 1,300 | 600 | 4,150 | 0-30 | 10-250 | 120-3,000 | | 0-650 | 450-950 | 800-1,350 | |
| 400 | 700 | 100 | 250 | 675 | 650 | 800 | 2,850 | 1,300 | 600 | 4,125 | 0-40 | 15-330 | 160-3,960 | | 0-650 | 450-950 | 850-1,350 | |
| 375 | 725 | 150 | 275 | 700 | 675 | 800 | 2,875 | 1,325 | 625 | 4,100 | 0-50 | 20-430 | 210-5,160 | | 0-650 | 500-950 | 850-1,400 | |
| 350 | 750 | 200 | 325 | 725 | 675 | 825 | 2,875 | 1,325 | 650 | 4,075 | 5-60 | 25-530 | 260-6,360 | | 50-700 | 500-950 | 850-1,400 | |
| 325 | 775 | 225 | 350 | 725 | 700 | 825 | 2,875 | 1,325 | 650 | 4,050 | 5-75 | 30-660 | 320-7,920 | 0 | 150-700 | 500-950 | 850-1,400 | 0 |
| 300 | 800 | 275 | 350 | 750 | 700 | 825 | 2,875 | 1,325 | 675 | 4,025 | 5-90 | 35-780 | 380-9,360 | 0-5 | 200-700 | 550-1,000 | 850-1,400 | 0-50 |
| 275 | 800 | 325 | 375 | 775 | 700 | 825 | 2,875 | 1,350 | 675 | 4,000 | 5-105 | 40-940 | 460-11,300 | 0-5 | 250-700 | 550-1,000 | 900-1,400 | 0-150 |
| 250 | 825 | 375 | 400 | 775 | 700 | 850 | 2,875 | 1,350 | 675 | 3,950 | 5-125 | 45-1,100 | 530-13,200 | 0-5 | 250-750 | 550-1,000 | 900-1,400 | 0-200 |
| 225 | 850 | 425 | 425 | 800 | 725 | 850 | 2,875 | 1,350 | 700 | 3,925 | 10-150 | 60-1,300 | 630-15,600 | 0-5 | 300-750 | 600-1,000 | 900-1,400 | 0-200 |
| 200 | 850 | 475 | 450 | 825 | 725 | 850 | 2,875 | 1,350 | 700 | 3,900 | 10-200 | 75-1,800 | 870-21,600 | 0-5 | 300-750 | 600-1,000 | 900-1,400 | 0-250 |
| 175 | 875 | 500 | 450 | 825 | 725 | 850 | 2,850 | 1,350 | 725 | 3,875 | 10-250 | 90-2,200 | 1,060-26,400 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-250 |
| 150 | 875 | 500 | 475 | 850 | 725 | 850 | 2,675 | 1,275 | 675 | 3,825 | 15-310 | 120-2,800 | 1,350-33,600 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 125 | 850 | 500 | 475 | 850 | 725 | 850 | 2,500 | 1,200 | 650 | 3,800 | 20-410 | 150-3,700 | 1,780-44,000 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 100 | 850 | 525 | 475 | 850 | 700 | 825 | 2,350 | 1,125 | 600 | 3,775 | 20-500 | 180-4,500 | 2,160-54,000 | 0-15 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 75 | 825 | 500 | 475 | 825 | 675 | 800 | 2,175 | 1,050 | 550 | 3,725 | FALLOUT GOVERNS | | | | | | | |
| 50 | 775 | 500 | 450 | 775 | 750 | 750 | 2,000 | 975 | 525 | 3,700 | | | | | | | | |
| 25 | 700 | 450 | 375 | 725 | 600 | 725 | 1,850 | 900 | 475 | 3,650 | | | | | | | | |
| 0 | 600 | 400 | 325 | 650 | 550 | 650 | 1,675 | 825 | 450 | 3,625 | | | | | | | | |

MGM 1

Figure 7.6c continued.

CASUALTY and DAMAGE Tables
Medium Guided Missile

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in l-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,350 | | 600 | | | | | 400 | | 0 | 125 | 3,750 | 3,750 | 8,575 | 6,450 | 5,600 | 5,225 | 3,100 | 2,350 | 3,750 | 2,000 | 675 |
| 1,300 | | 700 | | | | | 550 | | 900 | 900 | 3,750 | 3,750 | 8,575 | 6,450 | 5,600 | 5,225 | 3,125 | 2,375 | 3,750 | 2,175 | 750 |
| 1,250 | | 800 | | | | | 650 | | 1,125 | 1,125 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,250 | 3,150 | 2,400 | 3,750 | 2,375 | 825 |
| 1,200 | 0 | 875 | | 0 | | | 750 | | 1,300 | 1,300 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,250 | 3,175 | 2,425 | 3,750 | 2,500 | 925 |
| 1,150 | 250 | 925 | | 250 | 0 | | 800 | | 1,425 | 1,425 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,275 | 3,175 | 2,450 | 3,750 | 2,550 | 975 |
| 1,100 | 425 | 975 | 0 | 425 | 250 | | 875 | | 2,125 | 2,125 | 3,700 | 3,700 | 8,600 | 6,500 | 5,650 | 5,275 | 3,200 | 2,475 | 3,700 | 2,525 | 1,025 |
| 1,050 | 550 | 1,025 | 150 | 550 | 400 | | 950 | | 2,150 | 2,150 | 3,700 | 3,700 | 8,625 | 6,500 | 5,650 | 5,300 | 3,225 | 2,500 | 3,650 | 2,500 | 1,125 |
| 1,000 | 625 | 1,075 | 350 | 625 | 525 | 1,000 | | 0 | 2,175 | 2,175 | 3,650 | 3,650 | 8,625 | 6,500 | 5,675 | 5,300 | 3,225 | 2,500 | 3,600 | 2,475 | 1,225 |
| 950 | 700 | 1,125 | 475 | 700 | 600 | 1,050 | | 300 | 2,175 | 2,175 | 3,600 | 3,600 | 8,625 | 6,500 | 5,675 | 5,300 | 3,250 | 2,525 | 3,550 | 2,425 | 1,375 |
| 900 | 1,350 | 1,350 | 550 | 775 | 675 | 1,075 | | 425 | 2,150 | 2,150 | 3,500 | 3,500 | 8,625 | 6,525 | 5,675 | 5,325 | 3,250 | 2,550 | 3,475 | 2,400 | 1,450 |
| 850 | 1,575 | 1,575 | 650 | 825 | 750 | 1,125 | | 525 | 2,125 | 2,125 | 3,400 | 3,400 | 8,650 | 6,525 | 5,675 | 5,325 | 3,275 | 2,550 | 3,400 | 2,350 | 1,475 |
| 800 | 1,625 | 1,625 | 700 | 875 | 800 | 1,150 | | 600 | 2,100 | 2,100 | 3,300 | 3,300 | 8,650 | 6,525 | 5,700 | 5,325 | 3,300 | 2,575 | 3,325 | 2,300 | 1,450 |
| 775 | 1,625 | 1,625 | 725 | 900 | 825 | 1,175 | 0 | 625 | 2,100 | 2,100 | 3,250 | 3,250 | 8,650 | 6,525 | 5,700 | 5,325 | 3,300 | 2,575 | 3,300 | 2,275 | 1,450 |
| 750 | 1,625 | 1,625 | 750 | 925 | 850 | 1,200 | 125 | 650 | 2,075 | 2,075 | 3,250 | 3,250 | 8,650 | 6,525 | 5,700 | 5,350 | 3,300 | 2,600 | 3,250 | 2,250 | 1,425 |
| 725 | 1,650 | 1,650 | 775 | 925 | 850 | 1,200 | 225 | 675 | 2,050 | 2,050 | 3,200 | 3,200 | 8,650 | 6,525 | 5,700 | 5,350 | 3,300 | 2,600 | 3,225 | 2,225 | 1,425 |
| 700 | 1,650 | 1,650 | 800 | 950 | 875 | 1,225 | 300 | 700 | 2,050 | 2,050 | 3,150 | 3,150 | 8,650 | 6,525 | 5,700 | 5,350 | 3,325 | 2,600 | 3,175 | 2,175 | 1,400 |
| 675 | 1,650 | 1,650 | 825 | 975 | 900 | 1,250 | 350 | 725 | 2,025 | 2,025 | 3,100 | 3,100 | 8,650 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,125 | 2,150 | 1,375 |
| 650 | 1,650 | 1,650 | 850 | 1,000 | 925 | 1,250 | 400 | 750 | 2,000 | 2,000 | 3,050 | 3,050 | 8,650 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,075 | 2,125 | 1,350 |
| 625 | 1,650 | 1,650 | 850 | 1,000 | 925 | 1,250 | 425 | 775 | 1,975 | 1,975 | 3,000 | 3,000 | 8,675 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,050 | 2,100 | 1,375 |
| 600 | 1,650 | 1,650 | 875 | 1,025 | 950 | 1,275 | 475 | 800 | 1,950 | 1,950 | 3,000 | 3,000 | 8,675 | 6,550 | 5,725 | 5,375 | 3,325 | 2,625 | 3,000 | 2,100 | 1,375 |
| 575 | 1,650 | 1,650 | 900 | 1,025 | 975 | 1,275 | 500 | 825 | 1,925 | 1,925 | 2,950 | 2,950 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,950 | 2,075 | 1,400 |
| 550 | 1,650 | 1,650 | 900 | 1,050 | 975 | 1,300 | 525 | 825 | 1,900 | 1,900 | 2,900 | 2,900 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,900 | 2,050 | 1,400 |
| 525 | 1,650 | 1,650 | 925 | 1,050 | 1,000 | 1,300 | 550 | 850 | 1,875 | 1,875 | 2,900 | 2,900 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,850 | 2,025 | 1,425 |
| 500 | 1,650 | 1,650 | 950 | 1,075 | 1,000 | 1,325 | 575 | 850 | 1,850 | 1,850 | 2,850 | 2,850 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,825 | 2,025 | 1,425 |
| 475 | 1,650 | 1,650 | 950 | 1,075 | 1,025 | 1,325 | 600 | 875 | 1,825 | 1,825 | 2,800 | 2,800 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,775 | 2,000 | 1,425 |
| 450 | 1,650 | 1,650 | 975 | 1,100 | 1,025 | 1,325 | 625 | 875 | 1,800 | 1,800 | 2,800 | 2,800 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,750 | 1,975 | 1,425 |
| 425 | 1,650 | 1,650 | 975 | 1,100 | 1,050 | 1,350 | 625 | 900 | 1,775 | 1,775 | 2,750 | 2,750 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,675 | 2,725 | 1,950 | 1,450 |
| 400 | 1,650 | 1,650 | 975 | 1,125 | 1,050 | 1,350 | 650 | 900 | 1,750 | 1,750 | 2,700 | 2,700 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,675 | 2,700 | 1,950 | 1,450 |
| 375 | 1,650 | 1,650 | 1,000 | 1,125 | 1,050 | 1,350 | 650 | 925 | 1,725 | 1,725 | 2,700 | 2,700 | 8,675 | 6,575 | 5,800 | 5,375 | 3,350 | 2,675 | 2,650 | 1,925 | 1,450 |
| 350 | 1,650 | 1,650 | 1,000 | 1,125 | 1,075 | 1,375 | 675 | 925 | 1,700 | 1,700 | 2,650 | 2,650 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,625 | 1,900 | 1,475 |
| 325 | 1,650 | 1,650 | 1,025 | 1,150 | 1,075 | 1,375 | 675 | 950 | 1,675 | 1,675 | 2,600 | 2,600 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,600 | 1,900 | 1,475 |
| 300 | 1,650 | 1,650 | 1,025 | 1,150 | 1,075 | 1,375 | 700 | 950 | 1,675 | 1,675 | 2,600 | 2,600 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,575 | 1,875 | 1,475 |
| 275 | 1,650 | 1,650 | 1,025 | 1,150 | 1,100 | 1,375 | 700 | 950 | 1,650 | 1,650 | 2,550 | 2,550 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,550 | 1,875 | 1,475 |
| 250 | 1,650 | 1,650 | 1,025 | 1,150 | 1,100 | 1,400 | 725 | 975 | 1,625 | 1,625 | 2,550 | 2,550 | 8,600 | 6,500 | 5,675 | 5,350 | 3,300 | 2,650 | 2,525 | 1,850 | 1,475 |
| 225 | 1,625 | 1,625 | 1,050 | 1,175 | 1,100 | 1,400 | 725 | 975 | 1,625 | 1,625 | 2,500 | 2,500 | 8,000 | 6,225 | 5,425 | 5,100 | 3,200 | 2,575 | 2,500 | 1,850 | 1,500 |
| 200 | 1,625 | 1,625 | 1,050 | 1,175 | 1,100 | 1,400 | 725 | 975 | 1,600 | 1,600 | 2,500 | 2,500 | 7,750 | 5,950 | 5,175 | 4,875 | 3,100 | 2,500 | 2,475 | 1,825 | 1,500 |
| 175 | 1,600 | 1,600 | 1,050 | 1,175 | 1,100 | 1,400 | 750 | 975 | 1,600 | 1,600 | 2,450 | 2,450 | 7,500 | 5,675 | 4,925 | 4,650 | 2,975 | 2,400 | 2,450 | 1,825 | 1,500 |
| 150 | 1,575 | 1,575 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 975 | 1,575 | 1,575 | 2,450 | 2,450 | 7,100 | 5,400 | 4,700 | 4,425 | 2,875 | 2,325 | 2,425 | 1,800 | 1,500 |
| 125 | 1,550 | 1,550 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 975 | 1,550 | 1,550 | 2,400 | 2,400 | 6,750 | 5,100 | 4,450 | 4,200 | 2,775 | 2,250 | 2,400 | 1,800 | 1,500 |
| 100 | 1,525 | 1,525 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,550 | 1,550 | 2,400 | 2,400 | 6,400 | 4,825 | 4,200 | 3,975 | 2,675 | 2,175 | 2,375 | 1,800 | 1,500 |
| 75 | 1,475 | 1,475 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,525 | 1,525 | 2,350 | 2,350 | 6,050 | 4,550 | 3,950 | 3,725 | 2,550 | 2,100 | 2,350 | 1,800 | 1,500 |
| 50 | 1,425 | 1,425 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,525 | 1,525 | 2,300 | 2,300 | 5,600 | 4,275 | 3,700 | 3,500 | 2,450 | 2,025 | 2,350 | 1,800 | 1,500 |
| 25 | 1,350 | 1,350 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,500 | 1,500 | 2,300 | 2,300 | 5,300 | 4,025 | 3,475 | 3,300 | 2,350 | 1,950 | 2,325 | 1,800 | 1,500 |
| 0 | 1,300 | 1,300 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,500 | 1,500 | 2,300 | 2,300 | 4,850 | 3,750 | 3,250 | 3,100 | 2,250 | 1,875 | 2,300 | 1,800 | 1,500 |

HOB₁₈ = 111 mLow HOB_{min} = 196 mHigh HOB_{min} = 442 mHOB₉₉ = HOB₁₈ + 3.5 PE_h mHOB₉₈ = HOB₁₈ + 3.0 PE_h mHOB₉₀ = HOB₁₈ + 1.9 PE_h m

Figure 7.6d.

CASUALTY and DAMAGE Tables Medium Guided Missile

GOLF/50 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|---------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radars
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,350 | | | | | | | 3,700 | 1,550 | | 6,175 | | | 0-10 | | | | 0-800 | |
| 1,300 | | | | | | | 3,700 | 1,600 | | 6,150 | | | 0-10 | | | | 0-850 | |
| 1,250 | | | | | | | 3,725 | 1,625 | | 6,125 | | | 0-15 | | | | 0-950 | |
| 1,200 | | | | | | | 3,750 | 1,675 | 0 | 6,100 | | 0 | 0-15 | | 0 | | 0-1,000 | |
| 1,150 | | | | | | | 3,750 | 1,700 | 300 | 6,075 | | 0-5 | 0-25 | | 0-50 | | 0-1,050 | |
| 1,100 | | | | 0 | | | 3,775 | 1,750 | 450 | 6,050 | | 0-5 | 0-30 | | 0-350 | | 0-1,100 | |
| 1,050 | | | | 25 | | | 3,775 | 1,775 | 550 | 6,025 | | 0-5 | 5-40 | | 0-500 | | 50-1,150 | |
| 1,000 | | | | 175 | | | 3,800 | 1,800 | 650 | 6,000 | | 0-5 | 5-60 | | 0-600 | | 350-1,200 | |
| 950 | | | | 300 | | | 3,825 | 1,825 | 725 | 5,950 | | 0-10 | 5-80 | | 0-650 | | 500-1,250 | |
| 900 | | | | 425 | | 0 | 3,825 | 1,850 | 775 | 5,925 | | 0-10 | 5-110 | | 0-750 | | 550-1,300 | |
| 850 | 0 | | | 550 | | 1,175 | 3,825 | 1,875 | 825 | 5,875 | 0 | 0-15 | 10-160 | | 0 | 0-800 | 650-1,300 | |
| 800 | 150 | | | 650 | | | 1,225 | 3,850 | 1,900 | 875 | 5,850 | 0-5 | 0-20 | 10-230 | | 0-50 | 0-850 | 700-1,350 |
| 775 | 225 | | | 700 | | 1,225 | 3,850 | 1,900 | 900 | 5,825 | 0-5 | 0-25 | 15-270 | | 0-200 | 0-850 | 750-1,350 | |
| 750 | 275 | | | 725 | 0 | 1,225 | 3,850 | 1,925 | 925 | 5,800 | 0-5 | 0-30 | 15-330 | | 0-300 | 0-900 | 750-1,400 | |
| 725 | 350 | | | 775 | 800 | 1,225 | 3,875 | 1,925 | 950 | 5,775 | 0-5 | 0-35 | 20-410 | | 0-350 | 0-900 | 800-1,400 | |
| 700 | 400 | | 0 | 800 | 875 | 1,225 | 3,875 | 1,925 | 950 | 5,750 | 0-5 | 5-45 | 20-500 | | 0-400 | 50-950 | 800-1,400 | |
| 675 | 475 | | 50 | 850 | 900 | 1,225 | 3,875 | 1,950 | 975 | 5,725 | 0-10 | 5-55 | 25-620 | | 0-450 | 200-950 | 850-1,400 | |
| 650 | 600 | 0 | 125 | 875 | 900 | 1,225 | 3,875 | 1,950 | 975 | 5,700 | 0-10 | 5-65 | 35-780 | | 0-500 | 300-950 | 850-1,450 | |
| 625 | 825 | 25 | 175 | 900 | 925 | 1,250 | 3,875 | 1,975 | 1,025 | 5,675 | 0-10 | 5-80 | 40-960 | | 0-500 | 350-1,000 | 850-1,450 | |
| 600 | 900 | 50 | 250 | 925 | 925 | 1,250 | 3,875 | 1,975 | 1,025 | 5,650 | 0-15 | 5-100 | 50-1,200 | | 0-550 | 400-1,000 | 900-1,450 | |
| 575 | 950 | 100 | 300 | 950 | 925 | 1,250 | 3,900 | 1,975 | 1,050 | 5,625 | 0-15 | 5-125 | 60-1,470 | | 0-600 | 400-1,000 | 900-1,450 | |
| 550 | 975 | 150 | 350 | 975 | 950 | 1,250 | 3,900 | 1,975 | 1,050 | 5,600 | 0-20 | 10-155 | 75-1,860 | | 0-600 | 450-1,050 | 900-1,450 | |
| 525 | 1,000 | 200 | 375 | 1,000 | 950 | 1,250 | 3,900 | 2,000 | 1,075 | 5,575 | 0-25 | 10-205 | 100-2,460 | | 0-600 | 450-1,050 | 950-1,500 | |
| 500 | 1,025 | 225 | 425 | 1,000 | 950 | 1,250 | 3,900 | 2,000 | 1,075 | 5,550 | 5-30 | 10-250 | 120-3,000 | | 50-650 | 500-1,050 | 950-1,500 | |
| 475 | 1,075 | 275 | 450 | 1,025 | 950 | 1,250 | 3,900 | 2,000 | 1,100 | 5,525 | 5-45 | 15-375 | 180-4,500 | 0 | 150-650 | 550-1,050 | 950-1,500 | 0 |
| 450 | 1,100 | 325 | 475 | 1,050 | 950 | 1,250 | 3,900 | 2,000 | 1,100 | 5,500 | 5-55 | 20-475 | 230-5,700 | 0-5 | 250-700 | 550-1,100 | 1,000-1,500 | 0-50 |
| 425 | 1,100 | 350 | 500 | 1,075 | 975 | 1,250 | 3,900 | 2,025 | 1,100 | 5,475 | 5-70 | 25-625 | 300-7,500 | 0-5 | 300-700 | 600-1,100 | 1,000-1,500 | 0-150 |
| 400 | 1,125 | 400 | 525 | 1,100 | 975 | 1,250 | 3,900 | 2,025 | 1,125 | 5,450 | 5-90 | 35-825 | 400-9,900 | 0-5 | 300-700 | 600-1,100 | 1,000-1,500 | 0-200 |
| 375 | 1,150 | 450 | 550 | 1,100 | 1,000 | 1,250 | 3,900 | 2,025 | 1,125 | 5,425 | 5-120 | 45-1,080 | 520-12,900 | 0-5 | 350-750 | 600-1,100 | 1,000-1,550 | 0-250 |
| 350 | 1,175 | 500 | 575 | 1,125 | 1,000 | 1,250 | 3,925 | 2,025 | 1,125 | 5,400 | 10-150 | 55-1,330 | 640-15,900 | 0-5 | 400-750 | 650-1,100 | 1,000-1,550 | 0-300 |
| 325 | 1,200 | 575 | 600 | 1,150 | 1,000 | 1,250 | 3,925 | 2,025 | 1,150 | 5,350 | 10-190 | 70-1,650 | 800-19,800 | 0-5 | 400-750 | 650-1,150 | 1,000-1,550 | 0-350 |
| 300 | 1,225 | 650 | 600 | 1,175 | 1,025 | 1,250 | 3,925 | 2,050 | 1,150 | 5,325 | 10-215 | 80-1,950 | 940-23,400 | 0-5 | 400-750 | 650-1,150 | 1,050-1,550 | 0-350 |
| 275 | 1,225 | 675 | 625 | 1,175 | 1,025 | 1,250 | 3,925 | 2,050 | 1,150 | 5,300 | 15-260 | 100-2,350 | 1,130-28,200 | 0-10 | 450-800 | 650-1,150 | 1,050-1,550 | 0-400 |
| 250 | 1,250 | 700 | 650 | 1,200 | 1,025 | 1,250 | 3,850 | 2,025 | 1,150 | 5,275 | 15-310 | 110-2,750 | 1,320-33,000 | 0-10 | 450-800 | 700-1,150 | 1,050-1,550 | 0-400 |
| 225 | 1,250 | 725 | 650 | 1,200 | 1,050 | 1,250 | 3,700 | 1,950 | 1,125 | 5,225 | 15-360 | 130-3,250 | 1,560-39,000 | 0-10 | 450-800 | 700-1,150 | 1,050-1,550 | 0-400 |
| 200 | 1,250 | 725 | 675 | 1,225 | 1,050 | 1,250 | 3,550 | 1,850 | 1,075 | 5,200 | 20-500 | 180-4,500 | 2,160-54,000 | 0-15 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 175 | 1,250 | 750 | 675 | 1,225 | 1,075 | 1,250 | 3,400 | 1,775 | 1,025 | 5,175 | 25-610 | 220-5,500 | 2,640-66,000 | 0-15 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 150 | 1,225 | 750 | 700 | 1,225 | 1,075 | 1,225 | 3,275 | 1,700 | 975 | 5,125 | 35-770 | 280-7,000 | 3,360-84,000 | 0-20 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 125 | 1,225 | 750 | 700 | 1,200 | 1,050 | 1,225 | 3,125 | 1,600 | 950 | 5,100 | 45-1,020 | 370-9,250 | 4,440-111,000 | 5-25 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 100 | 1,200 | 725 | 675 | 1,175 | 1,025 | 1,200 | 2,975 | 1,525 | 900 | 5,050 | FALLOUT GOVERNS | | | | | | | |
| 75 | 1,150 | 725 | 650 | 1,150 | 975 | 1,150 | 2,825 | 1,450 | 850 | 5,025 | | | | | | | | |
| 50 | 1,075 | 675 | 600 | 1,100 | 925 | 1,125 | 2,675 | 1,375 | 800 | 5,000 | | | | | | | | |
| 25 | 975 | 650 | 525 | 1,025 | 875 | 1,075 | 2,525 | 1,275 | 750 | 4,950 | | | | | | | | |
| 0 | 825 | 550 | 450 | 950 | 800 | 975 | 2,375 | 1,200 | 725 | 4,925 | | | | | | | | |

MGM 1

Figure 7.6d continued.

CASUALTY and DAMAGE Tables
Medium Guided Missile

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,350 | | 975 | 0 | 0 | | 800 | | | 2,650 | 2,650 | 4,600 | 4,600 | 11,325 | 8,900 | 7,575 | 7,100 | 4,475 | 3,400 | 4,625 | 3,150 | 1,350 |
| 1,300 | | 1,025 | 125 | 125 | 0 | 875 | | | 2,700 | 2,700 | 4,550 | 4,550 | 11,325 | 8,900 | 7,600 | 7,100 | 4,475 | 3,425 | 4,575 | 3,125 | 1,475 |
| 1,250 | | 1,100 | 250 | 375 | 200 | 950 | | | 2,700 | 2,700 | 4,500 | 4,500 | 11,350 | 8,900 | 7,600 | 7,125 | 4,500 | 3,425 | 4,525 | 3,100 | 1,600 |
| 1,200 | | 1,150 | 375 | 500 | 400 | 1,000 | | | 2,700 | 2,700 | 4,450 | 4,450 | 11,350 | 8,925 | 7,600 | 7,125 | 4,500 | 3,450 | 4,475 | 3,075 | 1,725 |
| 1,150 | 0 | 1,200 | 475 | 625 | 525 | 1,075 | | 0 | 2,675 | 2,675 | 4,400 | 4,400 | 11,350 | 8,925 | 7,625 | 7,125 | 4,525 | 3,475 | 4,400 | 3,025 | 1,825 |
| 1,100 | 1,950 | 1,950 | 550 | 700 | 625 | 1,125 | | 175 | 2,650 | 2,650 | 4,300 | 4,300 | 11,350 | 8,925 | 7,625 | 7,125 | 4,525 | 3,475 | 4,325 | 2,975 | 1,875 |
| 1,050 | 2,100 | 2,100 | 625 | 775 | 700 | 1,175 | | 375 | 2,600 | 2,600 | 4,250 | 4,250 | 11,350 | 8,950 | 7,625 | 7,150 | 4,550 | 3,500 | 4,250 | 2,925 | 1,850 |
| 1,000 | 2,150 | 2,150 | 675 | 825 | 775 | 1,200 | | 500 | 2,600 | 2,600 | 4,150 | 4,150 | 11,350 | 8,950 | 7,625 | 7,150 | 4,550 | 3,525 | 4,175 | 2,875 | 1,825 |
| 950 | 2,175 | 2,175 | 725 | 900 | 825 | 1,250 | | 575 | 2,575 | 2,575 | 4,050 | 4,050 | 11,350 | 8,950 | 7,650 | 7,150 | 4,575 | 3,525 | 4,100 | 2,825 | 1,800 |
| 900 | 2,175 | 2,175 | 775 | 950 | 900 | 1,275 | 0 | 650 | 2,525 | 2,525 | 4,000 | 4,000 | 11,375 | 8,950 | 7,650 | 7,175 | 4,575 | 3,550 | 4,025 | 2,775 | 1,775 |
| 850 | 2,175 | 2,175 | 800 | 1,000 | 950 | 1,325 | 175 | 725 | 2,475 | 2,475 | 3,900 | 3,900 | 11,375 | 8,950 | 7,650 | 7,175 | 4,575 | 3,550 | 3,950 | 2,725 | 1,725 |
| 800 | 2,175 | 2,175 | 825 | 1,025 | 975 | 1,350 | 350 | 775 | 2,450 | 2,450 | 3,800 | 3,800 | 11,375 | 8,950 | 7,650 | 7,175 | 4,600 | 3,575 | 3,850 | 2,675 | 1,675 |
| 775 | 2,175 | 2,175 | 825 | 1,050 | 1,000 | 1,350 | 400 | 800 | 2,425 | 2,425 | 3,800 | 3,800 | 11,375 | 8,975 | 7,650 | 7,175 | 4,600 | 3,575 | 3,800 | 2,650 | 1,650 |
| 750 | 2,175 | 2,175 | 825 | 1,075 | 1,025 | 1,375 | 450 | 825 | 2,400 | 2,400 | 3,750 | 3,750 | 11,375 | 8,975 | 7,675 | 7,175 | 4,600 | 3,575 | 3,775 | 2,625 | 1,625 |
| 725 | 2,175 | 2,175 | 850 | 1,075 | 1,050 | 1,400 | 475 | 850 | 2,375 | 2,375 | 3,700 | 3,700 | 11,375 | 8,975 | 7,675 | 7,175 | 4,600 | 3,575 | 3,725 | 2,600 | 1,600 |
| 700 | 2,175 | 2,175 | 850 | 1,100 | 1,050 | 1,400 | 525 | 875 | 2,350 | 2,350 | 3,650 | 3,650 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,675 | 2,600 | 1,575 |
| 675 | 2,175 | 2,175 | 850 | 1,100 | 1,075 | 1,425 | 550 | 875 | 2,325 | 2,325 | 3,650 | 3,650 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,625 | 2,575 | 1,500 |
| 650 | 2,175 | 2,175 | 850 | 1,125 | 1,075 | 1,425 | 575 | 900 | 2,300 | 2,300 | 3,600 | 3,600 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,575 | 2,550 | 1,525 |
| 625 | 2,175 | 2,175 | 850 | 1,150 | 1,100 | 1,450 | 600 | 925 | 2,275 | 2,275 | 3,550 | 3,550 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,550 | 2,525 | 1,525 |
| 600 | 2,175 | 2,175 | 850 | 1,150 | 1,125 | 1,450 | 625 | 950 | 2,275 | 2,275 | 3,550 | 3,550 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,525 | 2,525 | 1,550 |
| 575 | 2,175 | 2,175 | 875 | 1,175 | 1,125 | 1,450 | 650 | 950 | 2,250 | 2,250 | 3,500 | 3,500 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,475 | 2,500 | 1,550 |
| 550 | 2,175 | 2,175 | 900 | 1,175 | 1,150 | 1,475 | 675 | 975 | 2,225 | 2,225 | 3,450 | 3,450 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,450 | 2,475 | 1,550 |
| 525 | 2,175 | 2,175 | 900 | 1,200 | 1,150 | 1,475 | 700 | 975 | 2,200 | 2,200 | 3,450 | 3,450 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,425 | 2,475 | 1,575 |
| 500 | 2,175 | 2,175 | 925 | 1,200 | 1,150 | 1,475 | 725 | 1,000 | 2,175 | 2,175 | 3,400 | 3,400 | 11,400 | 9,000 | 7,675 | 7,200 | 4,650 | 3,625 | 3,375 | 2,450 | 1,575 |
| 475 | 2,175 | 2,175 | 925 | 1,225 | 1,175 | 1,500 | 725 | 1,000 | 2,175 | 2,175 | 3,350 | 3,350 | 11,400 | 9,000 | 7,675 | 7,200 | 4,650 | 3,625 | 3,350 | 2,425 | 1,600 |
| 450 | 2,175 | 2,175 | 950 | 1,225 | 1,175 | 1,500 | 750 | 1,025 | 2,150 | 2,150 | 3,350 | 3,350 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,325 | 2,425 | 1,600 |
| 425 | 2,175 | 2,175 | 950 | 1,225 | 1,200 | 1,500 | 750 | 1,025 | 2,125 | 2,125 | 3,300 | 3,300 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,300 | 2,400 | 1,600 |
| 400 | 2,175 | 2,175 | 975 | 1,250 | 1,200 | 1,525 | 775 | 1,050 | 2,100 | 2,100 | 3,250 | 3,250 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,275 | 2,375 | 1,600 |
| 375 | 2,175 | 2,175 | 975 | 1,250 | 1,200 | 1,525 | 775 | 1,050 | 2,075 | 2,075 | 3,250 | 3,250 | 11,400 | 9,000 | 7,700 | 7,225 | 4,650 | 3,625 | 3,250 | 2,375 | 1,625 |
| 350 | 2,175 | 2,175 | 975 | 1,250 | 1,225 | 1,525 | 800 | 1,050 | 2,075 | 2,075 | 3,200 | 3,200 | 11,400 | 9,000 | 7,700 | 7,225 | 4,650 | 3,650 | 3,225 | 2,350 | 1,625 |
| 325 | 2,175 | 2,175 | 1,000 | 1,250 | 1,225 | 1,525 | 800 | 1,075 | 2,050 | 2,050 | 3,200 | 3,200 | 11,200 | 8,650 | 7,525 | 7,050 | 4,550 | 3,550 | 3,200 | 2,350 | 1,625 |
| 300 | 2,150 | 2,150 | 1,000 | 1,275 | 1,225 | 1,550 | 825 | 1,075 | 2,050 | 2,050 | 3,150 | 3,150 | 10,850 | 8,400 | 7,275 | 6,825 | 4,400 | 3,450 | 3,150 | 2,325 | 1,625 |
| 275 | 2,150 | 2,150 | 1,000 | 1,275 | 1,225 | 1,550 | 825 | 1,075 | 2,025 | 2,025 | 3,150 | 3,150 | 10,400 | 8,125 | 7,025 | 6,600 | 4,275 | 3,350 | 3,125 | 2,325 | 1,625 |
| 250 | 2,125 | 2,125 | 1,025 | 1,275 | 1,250 | 1,550 | 825 | 1,075 | 2,025 | 2,025 | 3,100 | 3,100 | 10,100 | 7,850 | 6,775 | 6,375 | 4,125 | 3,250 | 3,125 | 2,300 | 1,650 |
| 225 | 2,100 | 2,100 | 1,025 | 1,275 | 1,250 | 1,550 | 850 | 1,100 | 2,000 | 2,000 | 3,100 | 3,100 | 9,800 | 7,550 | 6,550 | 6,150 | 3,975 | 3,125 | 3,100 | 2,300 | 1,650 |
| 200 | 2,100 | 2,100 | 1,025 | 1,275 | 1,250 | 1,550 | 850 | 1,100 | 2,000 | 2,000 | 3,050 | 3,050 | 9,400 | 7,250 | 6,300 | 5,925 | 3,825 | 3,025 | 3,075 | 2,275 | 1,650 |
| 175 | 2,075 | 2,075 | 1,025 | 1,300 | 1,250 | 1,550 | 850 | 1,100 | 1,975 | 1,975 | 3,050 | 3,050 | 9,050 | 6,950 | 6,050 | 5,700 | 3,675 | 2,900 | 3,050 | 2,275 | 1,650 |
| 150 | 2,025 | 2,025 | 1,025 | 1,300 | 1,250 | 1,550 | 850 | 1,100 | 1,950 | 1,950 | 3,000 | 3,000 | 8,700 | 6,650 | 5,800 | 5,475 | 3,525 | 2,800 | 3,025 | 2,250 | 1,650 |
| 125 | 2,000 | 2,000 | 1,050 | 1,300 | 1,250 | 1,575 | 875 | 1,100 | 1,925 | 1,925 | 3,000 | 3,000 | 8,350 | 6,375 | 5,550 | 5,225 | 3,375 | 2,700 | 3,000 | 2,250 | 1,650 |
| 100 | 1,950 | 1,950 | 1,050 | 1,300 | 1,250 | 1,575 | 875 | 1,100 | 1,925 | 1,925 | 2,950 | 2,950 | 7,975 | 6,100 | 5,300 | 5,000 | 3,250 | 2,600 | 2,975 | 2,225 | 1,650 |
| 75 | 1,900 | 1,900 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,100 | 1,900 | 1,900 | 2,950 | 2,950 | 7,600 | 5,825 | 5,050 | 4,750 | 3,125 | 2,500 | 2,950 | 2,225 | 1,650 |
| 50 | 1,850 | 1,850 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,900 | 1,900 | 2,900 | 2,900 | 7,250 | 5,550 | 4,825 | 4,525 | 2,950 | 2,375 | 2,950 | 2,225 | 1,650 |
| 25 | 1,775 | 1,775 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,875 | 1,875 | 2,900 | 2,900 | 6,825 | 5,275 | 4,600 | 4,325 | 2,825 | 2,250 | 2,925 | 2,200 | 1,650 |
| 0 | 1,700 | 1,700 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,875 | 1,875 | 2,900 | 2,900 | 6,400 | 5,000 | 4,350 | 4,125 | 2,700 | 2,150 | 2,900 | 2,200 | 1,650 |

HOB₁₅ = 140 mLow HOB_{min} = 246 mHigh HOB_{min} = 557 mHOB₉₉ = HOB₁₅ + 3.5 PE_n mHOB₉₈ = HOB₁₅ + 3.0 PE_n mHOB₉₀ = HOB₁₅ + 1.9 PE_n m

Figure 7.6e.

CASUALTY and DAMAGE Tables Medium Guided Missile

HOTEL/100 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|---------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
Dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced Contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | Type
I | Type
II | Type
III | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,350 | | | | 0 | | | 5,500 | 2,425 | 725 | 7,600 | | | 0-15 | | | | 0-950 | |
| 1,300 | | | | 100 | | | 5,525 | 2,450 | 825 | 7,575 | | 0 | 0-20 | | 0 | | 0-1,050 | |
| 1,250 | | | | 250 | | | 5,525 | 2,475 | 900 | 7,550 | | 0-5 | 0-25 | | 0-50 | | 0-1,100 | |
| 1,200 | | | | 400 | | 0 | 5,550 | 2,500 | 950 | 7,500 | | 0-5 | 0-30 | | 0-400 | | 0-1,150 | |
| 1,150 | | | | 525 | | 1,550 | 5,550 | 2,525 | 1,025 | 7,475 | | 0-5 | 5-45 | | 0-550 | | 50-1,200 | |
| 1,100 | 0 | | | 650 | | 1,650 | 5,550 | 2,550 | 1,075 | 7,425 | | 0-5 | 5-60 | | 0-600 | | 350-1,250 | |
| 1,050 | 50 | | | 775 | | 1,675 | 5,575 | 2,575 | 1,125 | 7,400 | | 0-10 | 5-80 | | 0-700 | | 500-1,300 | |
| 1,000 | 200 | | | 875 | | 1,675 | 5,575 | 2,600 | 1,175 | 7,350 | | 0-10 | 5-120 | | 0-800 | | 600-1,350 | |
| 950 | 350 | | | 950 | 0 | 1,675 | 5,600 | 2,625 | 1,200 | 7,325 | 0 | 0-15 | 10-160 | | 0 | 0-850 | 650-1,400 | |
| 900 | 475 | | 0 | 1,050 | 1,175 | 1,675 | 5,600 | 2,625 | 1,250 | 7,275 | 0-5 | 0-20 | 10-220 | | 0-50 | 0-900 | 750-1,400 | |
| 850 | 650 | | 75 | 1,125 | 1,200 | 1,675 | 5,600 | 2,650 | 1,275 | 7,225 | 0-5 | 0-30 | 15-320 | | 0-350 | 0-950 | 800-1,450 | |
| 800 | 950 | 0 | 200 | 1,175 | 1,225 | 1,675 | 5,625 | 2,650 | 1,300 | 7,175 | 0-5 | 5-40 | 20-450 | | 0-450 | 50-1,000 | 850-1,450 | |
| 775 | 1,150 | 25 | 275 | 1,200 | 1,250 | 1,675 | 5,625 | 2,675 | 1,325 | 7,150 | 0-5 | 5-45 | 25-530 | | 0-500 | 200-1,000 | 850-1,500 | |
| 750 | 1,200 | 75 | 325 | 1,225 | 1,250 | 1,675 | 5,625 | 2,675 | 1,350 | 7,125 | 0-10 | 5-55 | 30-660 | | 0-550 | 300-1,050 | 900-1,500 | |
| 725 | 1,250 | 125 | 400 | 1,250 | 1,250 | 1,675 | 5,625 | 2,675 | 1,350 | 7,100 | 0-10 | 5-70 | 35-810 | | 0-550 | 350-1,050 | 900-1,500 | |
| 700 | 1,300 | 175 | 450 | 1,275 | 1,275 | 1,675 | 5,625 | 2,700 | 1,375 | 7,075 | 0-10 | 5-90 | 40-990 | | 0-600 | 400-1,050 | 950-1,500 | |
| 675 | 1,325 | 225 | 475 | 1,300 | 1,275 | 1,675 | 5,625 | 2,700 | 1,375 | 7,050 | 0-15 | 5-110 | 50-1,230 | | 0-600 | 450-1,100 | 950-1,550 | |
| 650 | 1,350 | 275 | 525 | 1,325 | 1,275 | 1,675 | 5,625 | 2,700 | 1,400 | 7,025 | 0-15 | 10-130 | 65-1,560 | | 0-650 | 500-1,100 | 950-1,550 | |
| 625 | 1,375 | 325 | 575 | 1,325 | 1,275 | 1,675 | 5,625 | 2,700 | 1,400 | 7,000 | 0-20 | 10-160 | 80-1,920 | | 0-700 | 500-1,100 | 1,000-1,550 | |
| 600 | 1,400 | 350 | 600 | 1,350 | 1,275 | 1,675 | 5,650 | 2,725 | 1,425 | 6,975 | 0-25 | 10-200 | 100-2,400 | | 0-700 | 550-1,100 | 1,000-1,550 | |
| 575 | 1,425 | 400 | 625 | 1,375 | 1,275 | 1,675 | 5,650 | 2,725 | 1,425 | 6,950 | 0-30 | 10-245 | 120-2,940 | | 0-700 | 600-1,150 | 1,000-1,550 | |
| 550 | 1,450 | 450 | 650 | 1,400 | 1,300 | 1,675 | 5,650 | 2,725 | 1,425 | 6,925 | 5-35 | 15-310 | 150-3,720 | | 50-750 | 600-1,150 | 1,050-1,600 | |
| 525 | 1,475 | 500 | 675 | 1,425 | 1,300 | 1,675 | 5,650 | 2,725 | 1,450 | 6,875 | 5-50 | 20-410 | 200-4,920 | 0 | 100-750 | 650-1,150 | 1,050-1,600 | 0 |
| 500 | 1,500 | 550 | 700 | 1,450 | 1,300 | 1,675 | 5,650 | 2,725 | 1,450 | 6,850 | 5-55 | 20-500 | 240-6,000 | 0-5 | 250-800 | 650-1,150 | 1,050-1,600 | 0-50 |
| 475 | 1,525 | 600 | 725 | 1,450 | 1,300 | 1,675 | 5,650 | 2,750 | 1,450 | 6,825 | 5-85 | 30-750 | 360-9,000 | 0-5 | 300-800 | 650-1,150 | 1,050-1,600 | 0-150 |
| 450 | 1,550 | 650 | 750 | 1,475 | 1,300 | 1,675 | 5,650 | 2,750 | 1,475 | 6,800 | 5-105 | 40-950 | 460-11,400 | 0-5 | 350-800 | 700-1,150 | 1,100-1,600 | 0-250 |
| 425 | 1,575 | 700 | 775 | 1,500 | 1,300 | 1,675 | 5,650 | 2,750 | 1,475 | 6,775 | 10-140 | 50-1,250 | 600-15,000 | 0-5 | 350-800 | 700-1,200 | 1,100-1,600 | 0-300 |
| 400 | 1,600 | 775 | 800 | 1,525 | 1,325 | 1,675 | 5,650 | 2,750 | 1,475 | 6,750 | 10-190 | 70-1,650 | 800-19,800 | 0-10 | 400-850 | 700-1,200 | 1,100-1,650 | 0-300 |
| 375 | 1,600 | 850 | 800 | 1,550 | 1,325 | 1,650 | 5,650 | 2,750 | 1,500 | 6,700 | 10-240 | 90-2,150 | 1,040-25,800 | 0-10 | 450-850 | 750-1,200 | 1,100-1,650 | 0-350 |
| 350 | 1,625 | 900 | 825 | 1,550 | 1,325 | 1,650 | 5,650 | 2,750 | 1,500 | 6,675 | 15-300 | 110-2,650 | 1,280-31,800 | 0-10 | 450-850 | 750-1,250 | 1,100-1,650 | 0-400 |
| 325 | 1,650 | 925 | 850 | 1,575 | 1,325 | 1,650 | 5,500 | 2,700 | 1,500 | 6,650 | 15-370 | 140-3,300 | 1,600-39,600 | 0-10 | 450-850 | 750-1,250 | 1,150-1,650 | 0-400 |
| 300 | 1,650 | 950 | 850 | 1,575 | 1,350 | 1,650 | 5,325 | 2,625 | 1,450 | 6,625 | 20-430 | 160-3,900 | 1,880-46,800 | 0-15 | 500-850 | 750-1,250 | 1,150-1,650 | 0-400 |
| 275 | 1,650 | 950 | 875 | 1,600 | 1,350 | 1,650 | 5,150 | 2,525 | 1,400 | 6,575 | 25-520 | 190-4,700 | 2,260-56,400 | 0-15 | 500-900 | 800-1,250 | 1,150-1,650 | 0-450 |
| 250 | 1,650 | 950 | 900 | 1,600 | 1,350 | 1,650 | 4,950 | 2,450 | 1,375 | 6,550 | 25-610 | 220-5,500 | 2,640-66,000 | 0-15 | 500-900 | 800-1,250 | 1,150-1,650 | 0-450 |
| 225 | 1,650 | 975 | 900 | 1,600 | 1,375 | 1,650 | 4,775 | 2,350 | 1,325 | 6,525 | 30-720 | 260-6,500 | 3,120-78,000 | 0-20 | 550-900 | 800-1,250 | 1,150-1,650 | 0-450 |
| 200 | 1,625 | 975 | 925 | 1,600 | 1,375 | 1,650 | 4,600 | 2,275 | 1,275 | 6,475 | 40-990 | 360-9,000 | 4,320-108,000 | 0-25 | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 |
| 175 | 1,625 | 975 | 925 | 1,600 | 1,375 | 1,625 | 4,400 | 2,175 | 1,225 | 6,450 | 50-1,210 | 440-11,000 | 5,280-132,000 | 0-30 | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 |
| 150 | 1,600 | 975 | 925 | 1,575 | 1,350 | 1,600 | 4,225 | 2,100 | 1,175 | 6,400 | 65-1,540 | 560-14,000 | 6,720-168,000 | 5-40 | 550-900 | 800-1,250 | 1,150-1,650 | 50-500 |
| 125 | 1,575 | 975 | 900 | 1,550 | 1,325 | 1,575 | 4,025 | 2,025 | 1,150 | 6,375 | FALLOUT GOVERNS | | | | | | | |
| 100 | 1,525 | 950 | 850 | 1,500 | 1,300 | 1,525 | 3,850 | 1,925 | 1,100 | 6,350 | | | | | | | | |
| 75 | 1,450 | 925 | 825 | 1,475 | 1,250 | 1,475 | 3,675 | 1,850 | 1,050 | 6,300 | | | | | | | | |
| 50 | 1,350 | 875 | 750 | 1,400 | 1,175 | 1,425 | 3,475 | 1,750 | 1,000 | 6,275 | | | | | | | | |
| 25 | 1,225 | 825 | 675 | 1,325 | 1,100 | 1,375 | 3,300 | 1,675 | 950 | 6,225 | | | | | | | | |
| 0 | 1,100 | 750 | 600 | 1,250 | 1,075 | 1,325 | 3,100 | 1,575 | 925 | 6,200 | | | | | | | | |

MGM 1

Figure 7.6e continued.

CASUALTY and DAMAGE Tables
Medium Guided Missile

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelter | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,700 | | 750 | 0 | 0 | | 400 | | | 3,350 | 3,350 | 5,850 | 5,850 | 15,200 | 11,775 | 10,350 | 9,775 | 6,275 | 4,750 | 5,850 | 4,000 | 1,700 |
| 1,600 | 0 | 950 | 275 | 275 | | 700 | | | 3,375 | 3,375 | 5,750 | 5,750 | 15,200 | 11,800 | 10,375 | 9,800 | 6,300 | 4,800 | 5,725 | 3,925 | 1,925 |
| 1,500 | 175 | 1,100 | 500 | 500 | 0 | 900 | | | 3,375 | 3,375 | 5,600 | 5,600 | 15,225 | 11,800 | 10,400 | 9,800 | 6,325 | 4,825 | 5,600 | 3,850 | 2,200 |
| 1,400 | 2,450 | 2,450 | 675 | 675 | 200 | 1,050 | | | 3,350 | 3,350 | 5,450 | 5,450 | 15,225 | 11,825 | 10,400 | 9,825 | 6,350 | 4,850 | 5,475 | 3,775 | 2,350 |
| 1,300 | 2,800 | 2,800 | 825 | 825 | 550 | 1,175 | | 0 | 3,300 | 3,300 | 5,300 | 5,300 | 15,250 | 11,825 | 10,400 | 9,825 | 6,375 | 4,875 | 5,325 | 3,675 | 2,325 |
| 1,200 | 2,875 | 2,875 | 900 | 900 | 750 | 1,275 | | 325 | 3,250 | 3,250 | 5,150 | 5,150 | 15,250 | 11,850 | 10,425 | 9,850 | 6,375 | 4,900 | 5,175 | 3,575 | 2,275 |
| 1,100 | 2,875 | 2,875 | 975 | 975 | 900 | 1,350 | | 575 | 3,175 | 3,175 | 5,000 | 5,000 | 15,250 | 11,850 | 10,425 | 9,850 | 6,400 | 4,925 | 5,025 | 3,450 | 2,200 |
| 1,050 | 2,875 | 2,875 | 1,025 | 1,025 | 950 | 1,400 | | 675 | 3,150 | 3,150 | 4,900 | 4,900 | 15,275 | 11,850 | 10,450 | 9,850 | 6,400 | 4,950 | 4,925 | 3,400 | 2,150 |
| 1,000 | 2,875 | 2,875 | 1,025 | 1,025 | 1,000 | 1,425 | 0 | 750 | 3,100 | 3,100 | 4,850 | 4,850 | 15,275 | 11,850 | 10,450 | 9,850 | 6,425 | 4,950 | 4,850 | 3,350 | 2,100 |
| 950 | 2,875 | 2,875 | 1,050 | 1,100 | 1,050 | 1,475 | 250 | 800 | 3,050 | 3,050 | 4,750 | 4,750 | 15,275 | 11,850 | 10,450 | 9,850 | 6,425 | 4,975 | 4,750 | 3,325 | 2,050 |
| 900 | 2,875 | 2,875 | 1,075 | 1,125 | 1,100 | 1,500 | 400 | 850 | 3,000 | 3,000 | 4,700 | 4,700 | 15,275 | 11,850 | 10,450 | 9,875 | 6,425 | 4,975 | 4,650 | 3,275 | 2,000 |
| 850 | 2,875 | 2,875 | 1,075 | 1,175 | 1,150 | 1,525 | 500 | 900 | 2,950 | 2,950 | 4,600 | 4,600 | 15,275 | 11,850 | 10,450 | 9,875 | 6,425 | 4,975 | 4,550 | 3,250 | 1,925 |
| 800 | 2,875 | 2,875 | 1,050 | 1,200 | 1,175 | 1,550 | 575 | 950 | 2,900 | 2,900 | 4,550 | 4,550 | 15,275 | 11,875 | 10,450 | 9,875 | 6,450 | 5,000 | 4,475 | 3,200 | 1,875 |
| 750 | 2,875 | 2,875 | 1,050 | 1,225 | 1,200 | 1,575 | 625 | 1,000 | 2,875 | 2,875 | 4,450 | 4,450 | 15,275 | 11,875 | 10,475 | 9,875 | 6,450 | 5,000 | 4,425 | 3,175 | 1,825 |
| 700 | 2,875 | 2,875 | 1,050 | 1,275 | 1,225 | 1,600 | 700 | 1,025 | 2,825 | 2,825 | 4,400 | 4,400 | 15,275 | 11,875 | 10,475 | 9,875 | 6,450 | 5,000 | 4,350 | 3,125 | 1,775 |
| 650 | 2,875 | 2,875 | 1,025 | 1,300 | 1,275 | 1,625 | 750 | 1,075 | 2,775 | 2,775 | 4,350 | 4,350 | 15,300 | 11,875 | 10,475 | 9,900 | 6,475 | 5,000 | 4,300 | 3,100 | 1,725 |
| 600 | 2,875 | 2,875 | 1,025 | 1,325 | 1,300 | 1,650 | 775 | 1,100 | 2,750 | 2,750 | 4,250 | 4,250 | 15,300 | 11,875 | 10,475 | 9,900 | 6,475 | 5,025 | 4,225 | 3,050 | 1,700 |
| 550 | 2,875 | 2,875 | 1,025 | 1,325 | 1,300 | 1,650 | 825 | 1,125 | 2,700 | 2,700 | 4,200 | 4,200 | 15,300 | 11,875 | 10,475 | 9,900 | 6,475 | 5,025 | 4,175 | 3,025 | 1,675 |
| 500 | 2,875 | 2,875 | 1,050 | 1,350 | 1,325 | 1,675 | 850 | 1,150 | 2,650 | 2,650 | 4,150 | 4,150 | 15,300 | 11,875 | 10,475 | 9,900 | 6,475 | 5,025 | 4,125 | 3,000 | 1,700 |
| 450 | 2,875 | 2,875 | 1,050 | 1,375 | 1,350 | 1,700 | 875 | 1,150 | 2,625 | 2,625 | 4,100 | 4,100 | 15,250 | 11,800 | 10,300 | 9,750 | 6,450 | 5,025 | 4,050 | 2,975 | 1,700 |
| 400 | 2,850 | 2,850 | 1,075 | 1,375 | 1,375 | 1,700 | 900 | 1,175 | 2,600 | 2,600 | 4,050 | 4,050 | 14,450 | 11,200 | 9,825 | 9,250 | 6,125 | 4,800 | 4,000 | 2,950 | 1,725 |
| 300 | 2,800 | 2,800 | 1,100 | 1,425 | 1,400 | 1,725 | 925 | 1,200 | 2,500 | 2,500 | 3,950 | 3,950 | 12,850 | 9,950 | 8,750 | 8,300 | 5,500 | 4,325 | 3,900 | 2,900 | 1,750 |
| 200 | 2,700 | 2,700 | 1,125 | 1,425 | 1,400 | 1,750 | 950 | 1,225 | 2,450 | 2,450 | 3,850 | 3,850 | 11,400 | 8,850 | 7,700 | 7,400 | 4,850 | 3,850 | 3,825 | 2,850 | 1,750 |
| 100 | 2,525 | 2,525 | 1,150 | 1,450 | 1,425 | 1,750 | 975 | 1,250 | 2,400 | 2,400 | 3,800 | 3,800 | 9,850 | 7,700 | 6,700 | 6,450 | 4,225 | 3,375 | 3,725 | 2,800 | 1,750 |
| 0 | 2,250 | 2,250 | 1,225 | 1,450 | 1,425 | 1,750 | 975 | 1,250 | 2,350 | 2,350 | 3,700 | 3,700 | 8,250 | 6,700 | 5,700 | 5,500 | 3,650 | 2,900 | 3,650 | 2,775 | 1,775 |

HOB_{fs} = 327mLow HOB_{min} = 310mHigh HOB_{min} = 702HOB_{gg} = HOB_{fs} + 3.5 PE_h mHOB_{g8} = HOB_{fs} + 3.0 PE_h mHOB_{g0} = HOB_{fs} + 1.9 PE_h m

Figure 7.6f.

CASUALTY and DAMAGE Tables
Medium Guided Missile

INDIA/200 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|----------------------|----------------------|---------------------|----------------------------------|----------------------------|-----------------------|-----------------|------------------------|------------------------|---------------------|--------------------------|-----------|--------------|---------|-----------------|-----------|-------------|---------|
| HOB | Mod dam wheeled vehs | Mod dam tks and arty | Severe dam sup deps | Severe dam radios and elec equip | Severe dam hwy and RR brgs | Severe dam float brgs | 2d-degree burns | | | 1 PSI over-pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed skin | 2-layer summer uniform | 4-layer winter uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type I | Type II | Type III | Type IV | Type I | Type II | Type III | Type IV |
| 1,700 | | | | 0 | | | 7,300 | 3,250 | 1,225 | 9,575 | | | 0-5 | | | | 0-600 | |
| 1,600 | | | | 250 | | 0 | 7,325 | 3,300 | 1,350 | 9,525 | | | 0-10 | | | | 0-850 | |
| 1,500 | | | | 575 | | 2,000 | 7,350 | 3,350 | 1,475 | 9,450 | | | 0-10 | | | | 0-1,000 | |
| 1,400 | 0 | | | 825 | | 2,250 | 7,375 | 3,375 | 1,575 | 9,375 | | 0 | 0-20 | | | 0 | 0-1,150 | |
| 1,300 | 150 | | | 1,075 | 0 | 2,275 | 7,375 | 3,425 | 1,650 | 9,300 | | 0-5 | 0-35 | | | 0-400 | 0-1,250 | |
| 1,200 | 450 | | | 1,275 | 1,625 | 2,275 | 7,400 | 3,450 | 1,725 | 9,225 | | 0-5 | 5-60 | | | 0-650 | 400-1,350 | |
| 1,100 | 750 | | 0 | 1,425 | 1,650 | 2,250 | 7,425 | 3,500 | 1,800 | 9,125 | | 0-10 | 5-120 | | | 0-800 | 600-1,450 | |
| 1,050 | 950 | | 150 | 1,500 | 1,650 | 2,250 | 7,425 | 3,500 | 1,825 | 9,075 | 0 | 0-15 | 10-160 | | 0 | 0-850 | 700-1,500 | |
| 1,000 | 1,350 | 0 | 300 | 1,550 | 1,675 | 2,250 | 7,425 | 3,525 | 1,850 | 9,025 | 0-5 | 0-20 | 10-230 | | 0-50 | 0-950 | 800-1,500 | |
| 950 | 1,575 | 100 | 425 | 1,600 | 1,675 | 2,250 | 7,450 | 3,525 | 1,875 | 8,975 | 0-5 | 0-30 | 15-320 | | 0-300 | 0-1,000 | 850-1,550 | |
| 900 | 1,675 | 200 | 550 | 1,650 | 1,700 | 2,250 | 7,450 | 3,550 | 1,900 | 8,925 | 0-5 | 0-40 | 20-440 | | 0-450 | 0-1,050 | 900-1,600 | |
| 850 | 1,750 | 300 | 650 | 1,700 | 1,725 | 2,225 | 7,450 | 3,550 | 1,925 | 8,875 | 0-10 | 5-55 | 25-630 | | 0-550 | 50-1,050 | 950-1,600 | |
| 800 | 1,800 | 400 | 725 | 1,750 | 1,725 | 2,225 | 7,450 | 3,575 | 1,950 | 8,825 | 0-10 | 5-75 | 40-890 | | 0-600 | 300-1,100 | 1,000-1,650 | |
| 750 | 1,875 | 475 | 800 | 1,800 | 1,725 | 2,225 | 7,450 | 3,575 | 1,950 | 8,775 | 0-15 | 5-110 | 55-1,320 | | 0-700 | 400-1,150 | 1,050-1,650 | |
| 700 | 1,925 | 575 | 850 | 1,850 | 1,725 | 2,225 | 7,475 | 3,600 | 1,975 | 8,725 | 0-20 | 10-165 | 80-1,980 | | 0-750 | 500-1,200 | 1,050-1,700 | |
| 650 | 1,975 | 675 | 900 | 1,875 | 1,750 | 2,225 | 7,475 | 3,600 | 2,000 | 8,675 | 0-30 | 15-260 | 125-3,120 | | 0-800 | 550-1,200 | 1,100-1,700 | |
| 600 | 2,025 | 775 | 950 | 1,925 | 1,750 | 2,200 | 7,475 | 3,600 | 2,025 | 8,600 | 5-45 | 20-400 | 200-4,800 | 0 | 50-800 | 600-1,250 | 1,100-1,700 | 0 |
| 550 | 2,050 | 900 | 1,000 | 1,975 | 1,775 | 2,200 | 7,475 | 3,625 | 2,025 | 8,550 | 5-70 | 25-620 | 300-7,440 | 0-5 | 250-850 | 650-1,250 | 1,150-1,750 | 0-50 |
| 500 | 2,100 | 1,050 | 1,050 | 2,000 | 1,775 | 2,200 | 7,475 | 3,625 | 2,050 | 8,475 | 5-110 | 40-1,000 | 480-12,000 | 0-5 | 350-900 | 700-1,300 | 1,150-1,750 | 0-250 |
| 450 | 2,150 | 1,150 | 1,075 | 2,050 | 1,800 | 2,200 | 7,450 | 3,625 | 2,075 | 8,425 | 10-210 | 80-1,900 | 920-22,800 | 0-5 | 400-900 | 750-1,300 | 1,200-1,750 | 0-350 |
| 400 | 2,175 | 1,225 | 1,125 | 2,075 | 1,800 | 2,200 | 7,075 | 3,475 | 2,000 | 8,350 | 15-370 | 135-3,300 | 1,590-39,600 | 0-10 | 450-950 | 750-1,300 | 1,200-1,800 | 0-400 |
| 300 | 2,175 | 1,275 | 1,175 | 2,125 | 1,825 | 2,075 | 6,300 | 3,125 | 1,800 | 8,225 | FALLOUT COVERS | | | | | | | |
| 200 | 2,125 | 1,300 | 1,200 | 2,100 | 1,775 | 2,050 | 5,550 | 2,725 | 1,600 | 8,100 | | | | | | | | |
| 100 | 1,950 | 1,225 | 1,100 | 1,950 | 1,700 | 1,925 | 4,775 | 2,450 | 1,425 | 7,950 | | | | | | | | |
| 0 | 1,450 | 975 | 800 | 1,650 | 1,350 | 1,725 | 4,025 | 2,100 | 1,225 | 7,800 | | | | | | | | |

Figure 7.6f continued.

MGM 1

CASUALTY and DAMAGE Tables
Medium Guided Missile

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in l-m earth shelter | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 2,200 | | 0 | 275 | 275 | | | | | 4,650 | 4,650 | 7,800 | 7,800 | 21,700 | 17,700 | 15,400 | 14,200 | 9,100 | 7,100 | 7,800 | 5,350 | 2,550 |
| 2,100 | | 400 | 525 | 525 | | 0 | | | 4,650 | 4,650 | 7,800 | 7,650 | 21,700 | 17,700 | 15,500 | 14,300 | 9,200 | 7,100 | 7,700 | 5,275 | 2,825 |
| 2,000 | 0 | 750 | 750 | 750 | | 200 | | | 4,650 | 4,650 | 7,550 | 7,550 | 21,700 | 17,700 | 15,500 | 14,300 | 8,200 | 7,100 | 7,575 | 5,200 | 3,050 |
| 1,900 | 3,550 | 3,550 | 925 | 925 | | 650 | | | 4,600 | 4,600 | 7,400 | 7,400 | 21,700 | 17,700 | 15,500 | 14,300 | 9,200 | 7,200 | 7,425 | 5,125 | 3,175 |
| 1,800 | 4,000 | 4,000 | 1,075 | 1,075 | | 900 | | | 4,500 | 4,500 | 7,250 | 7,250 | 21,700 | 17,700 | 15,500 | 14,300 | 9,200 | 7,200 | 7,275 | 5,025 | 3,175 |
| 1,700 | 4,100 | 4,100 | 1,175 | 1,175 | 0 | 1,075 | | | 4,450 | 4,450 | 7,100 | 7,100 | 21,700 | 17,700 | 15,500 | 14,300 | 9,200 | 7,200 | 7,150 | 4,925 | 3,125 |
| 1,600 | 4,150 | 4,150 | 1,250 | 1,250 | 400 | 1,225 | | | 4,350 | 4,350 | 6,900 | 6,900 | 21,700 | 17,700 | 15,500 | 14,300 | 9,300 | 7,200 | 6,975 | 4,825 | 3,075 |
| 1,500 | 4,150 | 4,150 | 1,325 | 1,325 | 675 | 1,325 | | 0 | 4,250 | 4,250 | 6,750 | 6,750 | 21,700 | 17,700 | 15,500 | 14,300 | 9,300 | 7,200 | 6,825 | 4,700 | 3,000 |
| 1,400 | 4,150 | 4,150 | 1,400 | 1,400 | 875 | 1,450 | | 325 | 4,150 | 4,150 | 6,600 | 6,600 | 21,700 | 17,700 | 15,500 | 14,300 | 9,300 | 7,300 | 6,650 | 4,600 | 2,900 |
| 1,300 | 4,150 | 4,150 | 1,425 | 1,425 | 1,000 | 1,525 | 0 | 625 | 4,100 | 4,100 | 6,450 | 6,450 | 21,700 | 17,700 | 15,500 | 14,300 | 9,300 | 7,300 | 6,450 | 4,500 | 2,800 |
| 1,200 | 4,150 | 4,150 | 1,450 | 1,450 | 1,125 | 1,600 | 275 | 800 | 4,000 | 4,000 | 6,300 | 6,300 | 21,800 | 17,700 | 15,600 | 14,400 | 9,300 | 7,300 | 6,275 | 4,425 | 2,675 |
| 1,100 | 4,150 | 4,150 | 1,450 | 1,450 | 1,225 | 1,675 | 400 | 925 | 3,900 | 3,900 | 6,200 | 6,200 | 21,800 | 17,800 | 15,600 | 14,400 | 9,300 | 7,300 | 6,100 | 4,350 | 2,550 |
| 1,050 | 4,150 | 4,150 | 1,425 | 1,425 | 1,275 | 1,725 | 475 | 1,000 | 3,850 | 3,850 | 6,100 | 6,100 | 21,800 | 17,800 | 15,600 | 14,400 | 9,300 | 7,300 | 6,050 | 4,325 | 2,500 |
| 1,000 | 4,150 | 4,150 | 1,425 | 1,425 | 1,300 | 1,750 | 575 | 1,050 | 3,850 | 3,850 | 6,050 | 6,050 | 21,800 | 17,800 | 15,600 | 14,400 | 9,300 | 7,300 | 5,975 | 4,275 | 2,450 |
| 950 | 4,150 | 4,150 | 1,400 | 1,400 | 1,350 | 1,775 | 650 | 1,075 | 3,800 | 3,800 | 6,000 | 6,000 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,300 | 5,900 | 4,250 | 2,400 |
| 900 | 4,150 | 4,150 | 1,400 | 1,400 | 1,375 | 1,800 | 725 | 1,125 | 3,750 | 3,750 | 5,900 | 5,900 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,300 | 5,850 | 4,200 | 2,375 |
| 850 | 4,150 | 4,150 | 1,400 | 1,400 | 1,400 | 1,825 | 775 | 1,175 | 3,700 | 3,700 | 5,850 | 5,850 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,400 | 5,775 | 4,175 | 2,325 |
| 800 | 4,150 | 4,150 | 1,375 | 1,450 | 1,450 | 1,850 | 825 | 1,200 | 3,700 | 3,700 | 5,800 | 5,800 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,400 | 5,725 | 4,150 | 2,300 |
| 750 | 4,150 | 4,150 | 1,375 | 1,475 | 1,475 | 1,850 | 875 | 1,225 | 3,650 | 3,650 | 5,750 | 5,750 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,400 | 5,675 | 4,125 | 2,275 |
| 700 | 4,150 | 4,150 | 1,350 | 1,500 | 1,500 | 1,875 | 925 | 1,250 | 3,600 | 3,600 | 5,650 | 5,650 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,400 | 5,600 | 4,075 | 2,275 |
| 650 | 4,150 | 4,150 | 1,350 | 1,525 | 1,600 | 1,900 | 950 | 1,300 | 3,550 | 3,550 | 5,600 | 5,600 | 21,800 | 17,800 | 15,400 | 14,300 | 9,400 | 7,300 | 5,550 | 4,050 | 2,250 |
| 600 | 4,150 | 4,150 | 1,350 | 1,550 | 1,700 | 1,925 | 975 | 1,325 | 3,550 | 3,550 | 5,550 | 5,550 | 20,800 | 17,200 | 15,000 | 13,900 | 9,100 | 7,100 | 5,500 | 4,025 | 2,250 |
| 550 | 4,125 | 4,125 | 1,350 | 1,550 | 1,750 | 1,925 | 1,025 | 1,350 | 3,500 | 3,500 | 5,500 | 5,500 | 19,400 | 16,500 | 14,400 | 13,400 | 8,700 | 6,800 | 5,450 | 4,000 | 2,250 |
| 500 | 4,100 | 4,100 | 1,350 | 1,575 | 1,800 | 1,950 | 1,050 | 1,350 | 3,450 | 3,450 | 5,450 | 5,450 | 18,500 | 15,900 | 13,900 | 12,800 | 8,400 | 6,600 | 5,400 | 3,975 | 2,250 |
| 400 | 4,025 | 4,025 | 1,400 | 1,600 | 1,825 | 1,975 | 1,075 | 1,375 | 3,400 | 3,400 | 5,300 | 5,300 | 17,600 | 14,700 | 12,800 | 11,800 | 7,800 | 6,100 | 5,300 | 3,925 | 2,275 |
| 300 | 3,925 | 3,925 | 1,450 | 1,625 | 1,850 | 2,000 | 1,125 | 1,400 | 3,350 | 3,350 | 5,200 | 5,200 | 16,000 | 13,500 | 11,700 | 10,800 | 7,100 | 5,600 | 5,200 | 3,875 | 2,300 |
| 200 | 3,775 | 3,775 | 1,500 | 1,650 | 1,825 | 2,000 | 1,125 | 1,425 | 3,300 | 3,300 | 5,100 | 5,100 | 14,400 | 12,200 | 10,600 | 9,800 | 6,500 | 5,200 | 5,125 | 3,825 | 2,325 |
| 100 | 3,550 | 3,550 | 1,575 | 1,650 | 1,700 | 2,000 | 1,150 | 1,450 | 3,250 | 3,250 | 5,000 | 5,000 | 13,000 | 11,000 | 9,500 | 8,800 | 5,900 | 4,700 | 5,050 | 3,800 | 2,375 |
| 0 | 3,250 | 3,250 | 1,675 | 1,675 | 1,650 | 2,000 | 1,150 | 1,450 | 3,250 | 3,250 | 4,450 | 4,450 | 11,500 | 9,700 | 8,500 | 7,900 | 5,300 | 4,200 | 4,975 | 3,775 | 2,400 |

HOB_{fs} = 445mLow HOB_{min} = 420mHigh HOB_{min} = 953mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 7.6g.

CASUALTY and DAMAGE Tables **Medium Guided Missile**

JULIETT/500 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
veh | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity of GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 2,300 | | | | 275 | | 0 | 10,475 | 4,925 | 2,200 | 12,925 | | | | | | | | |
| 2,100 | | | | 625 | | 3,325 | 10,500 | 4,975 | 2,300 | 12,875 | | | | | | | | |
| 2,000 | | | | 925 | | 3,350 | 10,500 | 5,000 | 2,375 | 12,800 | | | 0 | | | | 0 | |
| 1,900 | 0 | | | 1,200 | | 3,350 | 10,525 | 5,050 | 2,450 | 12,725 | | | 0-5 | | | | 0-450 | |
| 1,800 | 75 | | | 1,450 | 0 | 3,325 | 10,550 | 5,075 | 2,525 | 12,650 | | | 0-5 | | | | 0-750 | |
| 1,700 | 425 | | | 1,675 | 2,150 | 3,300 | 10,575 | 5,125 | 2,600 | 12,575 | | | 0-10 | | | | 0-1,000 | |
| 1,600 | 725 | | | 1,875 | 2,225 | 3,275 | 10,575 | 5,150 | 2,675 | 12,475 | | 0 | 0-15 | | 0 | | 0-1,150 | |
| 1,500 | 1,050 | | 0 | 2,050 | 2,250 | 3,250 | 10,600 | 5,175 | 2,725 | 12,400 | | 0-5 | 0-25 | | | 0-50 | 0-1,250 | |
| 1,400 | 1,525 | 0 | 300 | 2,200 | 2,275 | 3,200 | 10,600 | 5,200 | 2,775 | 12,300 | | 0-5 | 5-50 | | | 0-550 | 50-1,400 | |
| 1,300 | 2,250 | 125 | 600 | 2,325 | 2,300 | 3,175 | 10,625 | 5,225 | 2,825 | 12,200 | | 0-10 | 5-85 | | | 0-750 | 550-1,500 | |
| 1,200 | 2,450 | 325 | 825 | 2,400 | 2,325 | 3,150 | 10,625 | 5,250 | 2,875 | 12,100 | 0 | 0-15 | 10-150 | | 0 | 0-900 | 750-1,550 | |
| 1,100 | 2,600 | 525 | 1,025 | 2,525 | 2,350 | 3,125 | 10,650 | 5,275 | 2,900 | 12,000 | 0-5 | 0-25 | 15-290 | | 0-350 | 0-1,050 | 900-1,650 | |
| 1,050 | 2,650 | 625 | 1,100 | 2,575 | 2,350 | 3,125 | 10,650 | 5,275 | 2,925 | 11,950 | 0-5 | 0-35 | 20-390 | | 0-500 | 0-1,100 | 950-1,650 | |
| 1,000 | 2,700 | 750 | 1,175 | 2,600 | 2,350 | 3,100 | 10,650 | 5,300 | 2,950 | 11,900 | 0-10 | 5-50 | 25-570 | | 0-600 | 50-1,150 | 1,000-1,700 | |
| 950 | 2,775 | 850 | 1,225 | 2,650 | 2,375 | 3,075 | 10,650 | 5,300 | 2,950 | 11,825 | 0-10 | 5-65 | 35-780 | | 0-650 | 300-1,200 | 1,050-1,750 | |
| 900 | 2,825 | 950 | 1,275 | 2,700 | 2,375 | 3,050 | 10,650 | 5,325 | 2,975 | 11,775 | 0-10 | 5-90 | 45-1,080 | | 0-750 | 450-1,200 | 1,100-1,750 | |
| 850 | 2,875 | 1,050 | 1,350 | 2,750 | 2,375 | 3,050 | 10,675 | 5,325 | 3,000 | 11,725 | 0-15 | 10-130 | 65-1,560 | | 0-800 | 550-1,250 | 1,150-1,800 | |
| 800 | 2,925 | 1,150 | 1,400 | 2,800 | 2,400 | 3,025 | 10,675 | 5,325 | 3,000 | 11,675 | 0-25 | 10-185 | 90-2,220 | | 0-850 | 600-1,300 | 1,150-1,800 | |
| 750 | 2,975 | 1,275 | 1,450 | 2,825 | 2,400 | 3,000 | 10,675 | 5,350 | 3,025 | 11,600 | 0-35 | 15-275 | 135-3,300 | 0 | 0-900 | 700-1,300 | 1,200-1,800 | 0 |
| 700 | 3,025 | 1,450 | 1,500 | 2,875 | 2,400 | 2,975 | 10,675 | 5,350 | 3,025 | 11,550 | 5-50 | 20-420 | 200-4,950 | 0-5 | 50-950 | 750-1,350 | 1,250-1,850 | 0-50 |
| 650 | 3,050 | 1,600 | 1,525 | 2,925 | 2,425 | 2,975 | 10,625 | 5,350 | 3,100 | 11,475 | 5-75 | 30-650 | 320-7,800 | 0-5 | 300-950 | 800-1,350 | 1,250-1,850 | 0-300 |
| 600 | 3,100 | 1,700 | 1,575 | 2,950 | 2,450 | 2,950 | 10,250 | 5,175 | 3,000 | 11,425 | 5-110 | 40-1,000 | 480-12,000 | 0-5 | 400-1,000 | 800-1,400 | 1,300-1,900 | 0-400 |
| 550 | 3,125 | 1,750 | 1,625 | 3,000 | 2,450 | 2,925 | 9,875 | 5,000 | 2,900 | 11,350 | 10-175 | 65-1,550 | 750-18,600 | 0-5 | 450-1,050 | 850-1,400 | 1,300-1,900 | 0-450 |
| 500 | 3,150 | 1,800 | 1,650 | 3,025 | 2,450 | 2,900 | 9,475 | 4,825 | 2,800 | 11,300 | 15-280 | 100-2,500 | 1,200-30,000 | 0-10 | 500-1,050 | 900-1,450 | 1,350-1,900 | 0-500 |
| 400 | 3,125 | 1,825 | 1,725 | 3,075 | 2,475 | 2,850 | 8,725 | 4,450 | 2,575 | 11,150 | FALLOUT GOVERNS | | | | | | | |
| 300 | 3,075 | 1,850 | 1,750 | 3,050 | 2,425 | 2,825 | 7,950 | 4,100 | 2,375 | 11,025 | | | | | | | | |
| 200 | 2,975 | 1,825 | 1,675 | 2,925 | 2,375 | 2,750 | 7,200 | 3,750 | 2,175 | 10,875 | | | | | | | | |
| 100 | 2,650 | 1,700 | 1,475 | 2,725 | 2,200 | 2,625 | 6,425 | 3,375 | 1,975 | 10,750 | | | | | | | | |
| 0 | 2,100 | 1,400 | 1,150 | 2,400 | 1,900 | 2,500 | 5,675 | 3,025 | 1,775 | 10,600 | | | | | | | | |

MGM 1

Figure 7.6g continued.

CONTINGENT EFFECTS Tables
Medium Guided Missile

INDUCED RADIATION IN SOILS (See note 1.)

Fallout activity is not significant.

Impact burst not tabulated, fallout governs.

| Yield
KT | HOB | Estimated radii in meters of 2 rad/hr contour of induced radiation,
1 hour after burst. | | | | Estimated induced radiation intensity, 1 hour
after burst, at GZ. In rad/hr. | | | |
|-------------|------|--|---------------------------------|--------------------------------------|--|---|--------------|---------------|--------------|
| | | Soil type I
(Liberia, Africa) | Soil type II
(Nevado desert) | Soil type III
(lovo clay, Howoii) | Soil type IV
(beach sand,
Pensacola Flo) | Soil type I | Soil type II | Soil type III | Soil type IV |
| DELTA/5 | Low | 200-550 | 450-800 | 700-1,150 | 0-100 | 5-100 | 40-940 | 450-11,000 | 0-5 |
| | High | 0-500 | 400-800 | 700-1,150 | 0 | 0-35 | 15-275 | 140-3,300 | 0 |
| ECHO/10 | Low | 300-600 | 500-900 | 800-1,350 | 0-200 | 10-160 | 60-1,400 | 680-16,800 | 0-5 |
| | High | 50-550 | 400-850 | 750-1,350 | 0 | 5-45 | 20-390 | 200-4,680 | 0 |
| FOXTROT/20 | Low | 350-750 | 600-1,000 | 900-1,400 | 0-300 | 15-310 | 120-2,800 | 1,350-33,600 | 0-10 |
| | High | 50-700 | 500-950 | 850-1,400 | 0 | 5-60 | 25-530 | 260-6,360 | 0 |
| GOLF/50 | Low | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 | 25-610 | 220-5,500 | 2,640-66,000 | 0-15 |
| | High | 250-700 | 550-1,100 | 1,000-1,500 | 0-50 | 5-55 | 20-475 | 230-5,700 | 0-5 |
| HOTEL/100 | Low | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 | 40-990 | 360-9,000 | 4,320-10,800 | 0-25 |
| | High | 50-750 | 600-1,150 | 1,050-1,600 | 0 | 5-35 | 15-310 | 150-3,720 | 0 |
| INDIA/200 | Low | 450-950 | 750-1,300 | 1,200-1,800 | 0-400 | 15-370 | 135-3,300 | 1,590-39,600 | 0-10 |
| | High | 0-750 | 500-1,200 | 1,050-1,700 | 0 | 0-20 | 10-165 | 80-1,980 | 0 |
| JULIETT/500 | Low | 500-1,050 | 900-1,450 | 1,350-1,900 | 0-500 | 15-280 | 100-2,500 | 1,200-30,000 | 0-10 |
| | High | 0-750 | 450-1,200 | 1,100-1,750 | 0 | 0-10 | 5-90 | 45-1,080 | 0 |
| | Low | | | | | | | | |
| | High | | | | | | | | |

NOTE: For description of chemical composition and effects of variations in chemical composition in soil types, see FM 101-21-1, app III, annex F.

Figure 7.7a.

TREE BLOWDOWN (See note.)

All distances in meters

| Yield
KT | OBSTACLES TO MOVEMENT | | | | | | | CASUALTIES TO
EXPOSED PERSONNEL | | |
|-------------|--------------------------------------|------------|-------------|------------|-----------------------------|---------------------|----------------------|------------------------------------|---------------------|----------------------|
| | Foot and wheeled
vehicle movement | | | | Tracked vehicle
movement | | | | | |
| | Type
I | Type
II | Type
III | Type
IV | Type
I | Types
II, IVa(d) | Types
III, IVa(f) | Type
I | Types
II, IVa(d) | Types
III, IVa(f) |
| DELTA/5 | 600 | 800 | 900 | 1,400 | 600 | 800 | 900 | 400 | 600 | 600 |
| ECHO/10 | 750 | 1,000 | 1,100 | 1,900 | 750 | 1,000 | 1,100 | 600 | 800 | 900 |
| FOXTROT/20 | 1,050 | 1,300 | 1,500 | 2,400 | 1,050 | 1,300 | 1,500 | 750 | 1,000 | 1,150 |
| GOLF/50 | 1,650 | 2,100 | 2,500 | 3,900 | 1,650 | 2,100 | 2,500 | 1,200 | 1,550 | 1,700 |
| HOTEL/100 | 2,000 | 2,600 | 3,100 | 5,000 | 2,000 | 2,600 | 3,100 | 1,700 | 2,000 | 2,250 |
| INDIA/200 | 2,450 | 3,200 | 3,800 | 6,200 | 2,450 | 3,200 | 3,800 | 2,000 | 2,400 | 2,700 |
| JULIETT/500 | 3,750 | 4,800 | 6,000 | 9,400 | 3,750 | 4,800 | 6,000 | 3,150 | 3,600 | 4,200 |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 7.7b.

LIGHT AIRCRAFT IN FLIGHT (See note 1.)

| Yield
KT | AIRCRAFT SAFETY RADII-meters
(See note 2.) | | |
|-------------|---|-----------------------|---------------------------|
| | Light fixed
wing | Recon and
obsn hel | Transport and
util hel |
| DELTA/5 | 9,000 | 9,000 | 7,000 |
| ECHO/10 | 10,000 | 10,000 | 9,000 |
| FOXTROT/20 | 13,000 | 13,000 | 11,000 |
| GOLF/50 | 17,000 | 16,000 | 15,000 |
| HOTEL/100 | 22,000 | 21,000 | 18,000 |
| INDIA/200 | 27,000 | 26,000 | 23,000 |
| JULIETT/500 | 35,000 | 34,000 | 31,000 |

NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.

2. A buffer distance has been added to these radii of safety.

Figure 7.7c.

CONTINGENT EFFECTS Tables (continued)
Medium Guided Missile

FIRE AREAS (See note.)

| Yield
KT | HOB | Expected radii for ignition of wildland fuels during fire season—meters | | | | | | | |
|-------------|--------|---|----------|-----------|----------|---|----------|-----------|----------|
| | | Dry climate (25 percent relative humidity) | | | | Damp climate (75 percent relative humidity) | | | |
| | | Class I | Class II | Class III | Class IV | Class I | Class II | Class III | Class IV |
| DELTA/5 | Air | 2,000 | 1,800 | 1,700 | 1,400 | 1,800 | 1,800 | 1,500 | 1,100 |
| | Impact | 1,200 | 1,100 | 1,000 | 800 | 1,100 | 1,100 | 900 | 700 |
| ECHO/10 | Air | 2,600 | 2,400 | 2,200 | 1,800 | 2,400 | 2,400 | 2,100 | 1,500 |
| | Impact | 1,500 | 1,400 | 1,300 | 1,100 | 1,400 | 1,400 | 1,200 | 900 |
| FOXTROT/20 | Air | 3,400 | 3,200 | 2,900 | 2,400 | 3,200 | 3,200 | 2,700 | 2,000 |
| | Impact | 2,000 | 1,900 | 1,700 | 1,400 | 1,900 | 1,900 | 1,500 | 1,200 |
| GOLF/50 | Air | 4,900 | 4,500 | 4,100 | 3,300 | 4,500 | 4,500 | 3,800 | 2,900 |
| | Impact | 2,800 | 2,600 | 2,300 | 2,000 | 2,600 | 2,600 | 2,200 | 1,600 |
| HOTEL/100 | Air | 6,400 | 5,900 | 5,400 | 4,400 | 5,900 | 5,900 | 4,800 | 3,700 |
| | Impact | 3,500 | 3,200 | 3,000 | 2,500 | 3,200 | 3,200 | 2,800 | 2,100 |
| INDIA/200 | Air | 8,300 | 7,700 | 7,000 | 5,800 | 7,700 | 7,700 | 6,400 | 4,800 |
| | Impact | 4,500 | 4,200 | 3,800 | 3,200 | 4,200 | 4,200 | 3,500 | 2,700 |
| JULIETT/500 | Air | 11,900 | 11,000 | 9,900 | 8,200 | 11,000 | 11,000 | 9,200 | 6,900 |
| | Impact | 6,200 | 5,700 | 5,300 | 4,400 | 5,700 | 5,700 | 4,900 | 3,800 |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 7.7d.

CRATER DIMENSIONS (See note.)

| Yield
KT | Approx crater dimensions for various soil types—meters | | | | | | | |
|-------------|--|-------|---|-------|--|-------|---|-------|
| | Hard rock
(granite and
sandstone) | | Soft rock
(dry soil or
soft rock) | | Saturated soil
(water slowly
fills crater) | | Saturated soil
(water rapidly
fills crater) | |
| | Radius | Depth | Radius | Depth | Radius | Depth | Radius | Depth |
| DELTA/5 | 27 | 8 | 34 | 10 | 50 | 15 | 67 | 7 |
| ECHO/10 | 34 | 10 | 42 | 12 | 63 | 18 | 84 | 8 |
| FOXTROT/20 | 43 | 11 | 53 | 14 | 80 | 21 | 106 | 10 |
| GOLF/50 | 58 | 14 | 72 | 17 | 108 | 26 | 144 | 12 |
| HOTEL/100 | 73 | 17 | 91 | 21 | 136 | 31 | 182 | 15 |
| INDIA/200 | 92 | 20 | 115 | 24 | 172 | 36 | 229 | 17 |
| JULIETT/500 | 124 | 25 | 155 | 31 | 233 | 46 | 310 | 22 |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 7.7e.

MGM I

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CHAPTER 8

HEAVY GUIDED MISSILE

8.1 GENERAL

a. *Orientation.* This chapter contains employment data for the heavy guided missile with its associated warhead sections fired from a mobile launcher.

b. *Weapon characteristics.*

(1) *Yield.* The warhead sections for the heavy guided missile have yields of India/200 KT, Juliett/500 KT, Kilo/1 MT, Lima/2 MT, and Mike/5 MT.

(2) *Fuzing.*

(a) The fuzing for the heavy guided missile provides airburst and impact fuzing options. The airburst option is radar-fuzed and can be set for either high or low airburst; these are the only heights of burst available. When the fuze is set for an airburst, the system provides for an option of either contact backup or contact preclusion.

(b) The fuzes are preset at the following heights of burst:

| Warhead section | HOB option | HOB (meters) | PE _h (meters) |
|-----------------|------------|--------------|--------------------------|
| India/200 KT | low | 677 | 100 |
| | high | 965 | |
| Juliett/500 KT | low | 795 | 100 |
| | high | 1,184 | |
| Kilo/1 MT | low | 910 | 100 |
| | high | 1,400 | |
| Lima/2 MT | low | 1,056 | 100 |
| | high | 1,673 | |
| Mike/5 MT | low | 1,308 | 100 |
| | high | 2,146 | |

(3) *Preinitiation.* See figure 13.7¹ for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The minimum and maximum ranges of the heavy guided missile are 50,000 meters and 300,000 meters.

(2) *Tactical system accuracy.* The tactical system errors for the heavy guided missile are independent of range. A CEP of 1,000 meters has been used in the computation of the weapon selection tables. The vertical probable error is 100 meters.

(3) *Unit carrying capacity.* A heavy guided missile unit can draw, transport, and store at any one time a total of four complete rounds per battalion.

(4) *Response time.* The times shown below can be used as a basis for general tactical planning. They are considered to be applicable to a reasonably well-trained unit operating in daylight under favorable weather conditions. Blackout operations, unfavorable weather, enemy interference, equipment breakdown, or faulty test indications will extend the times listed. *For detailed tactical planning, the response times should be the actual times obtained from the artillery unit concerned.*

| Situation | Time (minutes) | Remarks |
|-----------------|----------------|--|
| I ¹ | 120 | For situation I, add 25 minutes if warhead section must be removed and a new warhead section with required yield mated to missile. |
| II ² | 20 | |

¹Situation I (high readiness)—the complete round and launcher are in a firing position and survey is completed. Preliminary firing data for a specific target are not available. Prefire checkout which can be performed prior to the receipt of a fire mission have been completed. (May be used to engage target of opportunity.)

²Situation II (maximum readiness)—firing data for a specific target have been computed and applied to the weapon system. The unit is awaiting an order to fire. (Typical of readiness to engage on-call target.)

(5) *Special considerations.* The target analyst needs no special information from the unit fire direction center for target analysis. The fire mission to the unit includes, for an airburst fuzing option, the radar HOB setting, high or low; it also includes whether contact backup or contact preclusion is desired. When contact backup is chosen, a fallout prediction is made. When an impact fuzing option is selected, the fire mission specifies HOB impact.

HGM 1

¹Heavy Guided Missile.

EXPOSED Personnel Targets Heavy Guided Missile

| Yield | HOB option
(HOB-meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED | | | | | | | | | | | | | | | | Probable
minimum
R _D | | Offset
distance
d _o |
|-------|----------------------------|--|--|--------|--------|--------|--------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|--------|--------|---------------------------------------|---------|--------------------------------------|
| | | | In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | | |
| | | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | |
| | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | (meters) | | |
| KT | (See note) | | 1,600 | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 1,600 | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | Prompt | Delayed | (meters) |
| 200 | High (965) | 17,300 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 2,850 | 2,850 | 1,830 |
| | Low (677) | 17,300 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .8/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 2,875 | 2,875 | (all
yields) |
| | Impact | *10,300 | .6/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | .6/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | 2,275 | 2,275 | |
| 500 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | 8,800 | 9,600 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | 8,800 | 9,600 | | | |
| | High (1,184) | 23,800 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.9 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 4,150 | 4,150 | |
| | Low (795) | 23,800 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 4,150 | 4,150 | |
| | Impact | *13,500 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 3,300 | 3,300 | |
| 1,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 4,000 | 5,200 | 6,400 | 7,600 | 8,800 | 10,000 | 11,200 | 12,400 | 4,000 | 5,200 | 6,400 | 7,600 | 8,800 | 10,000 | 11,200 | 12,400 | | | |
| | High (1,400) | 30,400 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 5,475 | 5,475 | |
| | Low (910) | 30,400 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9 | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 5,450 | 5,450 | |
| | Impact | *17,100 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 4,350 | 4,350 | |
| 2,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 6,000 | 8,000 | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | 6,000 | 8,000 | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | | | |
| | High (1,673) | 39,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 7,225 | 7,225 | |
| | Low (1,056) | 39,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 7,175 | 7,175 | |
| | Impact | *22,100 | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | | .7/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | | 5,725 | 5,725 | |
| 5,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | 22,000 | 24,000 | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | 22,000 | 24,000 | | | |
| | High (2,146) | 56,800 | .8/.9 | .6/.7 | .5/.5 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9 | .6/.7 | .5/.5 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 10,425 | 10,425 | |
| | Low (1,308) | 54,500 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .8/.9 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 10,325 | 10,325 | |
| | Impact | *31,200 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 8,250 | 8,250 | |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
 Low airburst—Precludes fallout.
 Impact burst—Produces fallout.

*Initial effects only. Fallout governs.

Figure 8.1.

PROTECTED Personnel Targets Heavy Guided Missile

| Yield | HOB option
(HOB-meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d ₀
(meters) | |
|-------|----------------------------|--|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|-------|
| | | | In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | | | | |
| | | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | | |
| | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| KT | (See note) | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | Prompt | Delayed | (meters) | |
| 200 | High (965) | 17,300 | .0/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | | | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | | | | | 950 | 950 | 1,830 |
| | Low (795) | 17,300 | .0/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | | | .1/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | 1,050 | 1,150 | (all
yields) | |
| | Impact | *10,300 | .0/.5 | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,150 | 1,450 | | |
| 500 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | | | | |
| | High (1,184) | 23,800 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,400 | 1,400 | | |
| | Low (795) | 23,800 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,350 | 1,425 | | |
| | Impact | *13,500 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .3/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,675 | 1,675 | | |
| 1,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | | | | |
| | High (1,400) | 30,400 | .4/.7 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .4/.7 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 1,800 | 1,800 | | |
| | Low (910) | 30,400 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .4/.7 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 1,700 | 1,700 | | |
| | Impact | *17,100 | .6/.8 | .5/.8 | .4/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .6/.8 | .5/.8 | .4/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | 2,100 | 2,100 | | |
| 2,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | | | | |
| | High (1,673) | 39,000 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | 2,225 | 2,225 | | |
| | Low (1,056) | 39,000 | .5/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .5/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | 2,150 | 2,150 | | |
| | Impact | *22,100 | .7/.9 | .6/.8 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.4 | .7/.9 | .6/.8 | .6/.8 | .5/.7 | .4/.6 | .4/.5 | .3/.4 | .3/.4 | 2,650 | 2,650 | | |
| 5,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | | |
| | | | 3,000 | 3,600 | 4,200 | 4,800 | 5,400 | 6,000 | 6,600 | 7,200 | 3,000 | 3,600 | 4,200 | 4,800 | 5,400 | 6,000 | 6,600 | 7,200 | | | | |
| | High (2,146) | 56,800 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 2,925 | 2,925 | | |
| | Low (1,308) | 54,500 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,900 | 2,900 | | |
| | Impact | *31,200 | .7/.8 | .6/.8 | .5/.6 | .4/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .7/.8 | .6/.8 | .5/.6 | .4/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | 3,600 | 3,600 | | |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
Low airburst—Precludes fallout.
Impact burst—Produces fallout.

*Initial effects only. Fallout governs.

Figure 8.2.

HGM 1

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MATERIEL Targets Heavy Guided Missile

| Yield | HOB option
(HOB—meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | | |
|-------|----------------------------|--|--|--------|--------|--------|--------|--------|--------|--------|--|------------------------|-------|-------|-------|-------|-------|-------|--|--|--------------------------|
| | | | WHEELED VEHICLES | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | | 1,800 |
| KT | (See note) | (meters) | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | (meters) | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | (meters) | |
| 200 | High (965) | 17,300 | .1/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 575 | .0/.0 | | | | | | | | 0 | 1,830
(all
yields) |
| | Low (677) | 17,300 | .4/.7 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 1,725 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.2 | .0/.1 | | 250 | |
| | Impact | *10,300 | .2/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 1,450 | .0/.4 | .0/.4 | .0/.4 | .0/.4 | .0/.3 | .1/.3 | .1/.3 | .1/.2 | 975 | |
| 500 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 2,000 | 2,800 | 3,600 | 4,400 | 5,200 | 6,000 | 6,800 | 7,600 | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | | |
| | High (1,184) | 23,800 | .5/.7 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 1,750 | .0/.1 | | | | | | | | 0 | |
| | Low (795) | 23,800 | .7/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 2,725 | .0/.5 | .1/.5 | .1/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.1 | | 775 | |
| | Impact | *13,500 | .4/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | | 2,100 | .2/.6 | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 1,400 | |
| 1,000 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | 8,800 | 9,600 | | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | | |
| | High (1,400) | 30,400 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 3,100 | .0/.1 | | | | | | | | 250 | |
| | Low (910) | 30,400 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 3,750 | .3/.6 | .2/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.2 | .0/.2 | | 1,325 | |
| | Impact | *17,100 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | | 2,775 | .4/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 1,850 | |
| 2,000 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 4,000 | 5,200 | 6,400 | 7,600 | 8,800 | 10,000 | 11,200 | 12,400 | | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | | | |
| | High (1,673) | 39,000 | .7/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 4,350 | .0/.2 | .0/.1 | | | | | | | 650 | |
| | Low (1,056) | 39,000 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 5,100 | .5/.7 | .3/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | | 2,075 | |
| | Impact | *22,100 | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | | 3,675 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 2,450 | |
| 5,000 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 8,800 | 10,000 | 11,200 | 12,400 | 13,600 | 14,800 | 16,000 | 17,200 | | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | 8,800 | 9,600 | | |
| | High (2,146) | 56,800 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 6,550 | .1/.2 | .0/.2 | .0/.1 | | | | | | 1,425 | |
| | Low (1,308) | 54,500 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .1/.2 | 7,575 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 3,650 | |
| | Impact | *31,200 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | | | 5,300 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 3,525 | |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
Low airburst—Precludes fallout.
Impact burst—Produces fallout.

*Initial effects only. Fallout governs.

Figure 8.3.

HGM 1

Troop Safety Distances—Meters Heavy Guided Missile

| Range | Yield | Height of burst option | Minimum Distance Required for Troop Vulnerability and Degree of Risk Shown | | | | | | | | |
|---------------------------------|-----------------|------------------------|--|----------|-----------|----------------|----------|-----------|------------------|----------|-----------|
| | | | Unwarned Exposed | | | Warned Exposed | | | Warned Protected | | |
| | | | NEG Risk | MOD Risk | EMER Risk | NEG Risk | MOD Risk | EMER Risk | NEG Risk | MOD Risk | EMER Risk |
| All ranges 50 km through 300 km | INDIA/ 200 KT | High | 17,300 | 13,900 | 12,500 | 11,900 | 8,500 | 7,000 | 7,100 | 5,600 | 4,300 |
| | | Low | 17,300 | 13,900 | 12,500 | 11,900 | 8,500 | 7,100 | 6,600 | 5,300 | 4,000 |
| | | Impact ¹ | 10,300 | 8,700 | 7,700 | 7,500 | 5,700 | 4,900 | 5,700 | 4,800 | 3,800 |
| | JULIETT/ 500 KT | High | 23,800 | 19,800 | 17,600 | 16,400 | 11,400 | 9,400 | 8,500 | 6,600 | 4,900 |
| | | Low | 23,800 | 19,800 | 17,600 | 16,400 | 11,400 | 9,400 | 8,000 | 6,300 | 4,400 |
| | | Impact ¹ | 13,500 | 11,700 | 10,500 | 9,900 | 7,300 | 6,200 | 7,000 | 5,800 | 4,400 |
| | KILO/ 1,000 KT | High | 30,400 | 25,800 | 22,900 | 21,000 | 14,700 | 12,000 | 10,000 | 7,700 | 5,500 |
| | | Low | 30,400 | 25,800 | 22,900 | 21,000 | 14,700 | 12,000 | 9,400 | 7,300 | 5,000 |
| | | Impact ¹ | 17,100 | 14,800 | 13,300 | 12,200 | 9,000 | 7,600 | 8,300 | 6,800 | 5,100 |
| | LIMA/ 2,000 KT | High | 39,000 | 33,500 | 29,400 | 26,700 | 18,700 | 15,600 | 11,900 | 9,000 | 6,200 |
| | | Low | 39,000 | 33,500 | 29,400 | 26,700 | 18,700 | 15,600 | 11,200 | 8,600 | 5,600 |
| | | Impact ¹ | 22,100 | 18,700 | 17,300 | 15,500 | 11,200 | 9,200 | 9,900 | 8,000 | 5,700 |
| | MIKE/ 5,000 KT | High | 56,800 | 47,700 | 40,400 | 37,600 | 27,100 | 22,100 | 15,200 | 11,400 | 7,500 |
| | | Low | 54,500 | 45,800 | 38,900 | 36,100 | 26,100 | 21,300 | 14,100 | 10,800 | 6,900 |
| | | Impact ¹ | 31,200 | 26,700 | 23,500 | 21,200 | 15,600 | 12,800 | 12,800 | 10,200 | 7,200 |

NOTE: The troop safety distances include the safety radius for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly disposition. See fig 8.5 for special friendly troop orientations.

¹Initial effects only. Fallout governs.

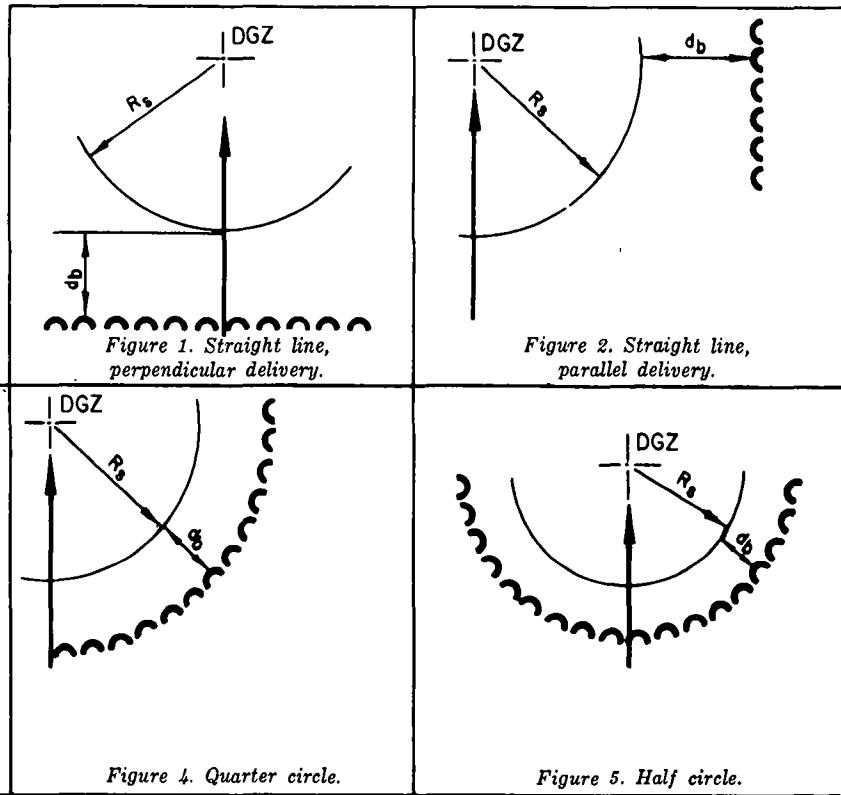
Figure 8.4.

SUPPLEMENTARY TROOP SAFETY Tables Heavy Guided Missile

The troop safety distances in figure 8.4 are based on the friendly troop orientation shown in figure 1 below. The circular delivery pattern of the heavy guided missile may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

Special Troop Safety Orientations

LEGEND
 DGZ - Desired ground zero.
 R_s - Safety radius
 d_b - Buffer distance.
 ~~~~~ - Friendly troops.  
 → - Direction of fire.



When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figure 8.4 must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options-All Yields |                                                |                                           |                              |                           |
|----------------------------------------|------------------------------------------------|-------------------------------------------|------------------------------|---------------------------|
| Range<br>(meters)                      | Straight line,<br>parallel delivery<br>(fig 2) | Straight line,<br>45° delivery<br>(fig 3) | Quarter<br>circle<br>(fig 4) | Half<br>circle<br>(fig 5) |
| All<br>ranges                          | 0                                              | 0                                         | +300                         | +600                      |

Figure 8.5.

HGM 1

CASUALTY and DAMAGE Tables  
Heavy Guided Missile

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                    |         |                                |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,700 |                   | 750     | 0                   | 0       |                    | 400     |                                |         | 3,350                             | 3,350   | 5,850                    | 5,850   | 15,200            | 11,775 | 10,350 | 9,775           | 6,275 | 4,750 | 5,850             | 4,000 | 1,700 |
| 1,600 | 0                 | 950     | 275                 | 275     |                    | 700     |                                |         | 3,375                             | 3,375   | 5,750                    | 5,750   | 15,200            | 11,800 | 10,375 | 9,800           | 6,300 | 4,800 | 5,725             | 3,925 | 1,925 |
| 1,500 | 175               | 1,100   | 500                 | 500     | 0                  | 900     |                                |         | 3,375                             | 3,375   | 5,600                    | 5,600   | 15,225            | 11,800 | 10,400 | 9,800           | 6,325 | 4,825 | 5,600             | 3,850 | 2,200 |
| 1,400 | 2,450             | 2,450   | 675                 | 675     | 200                | 1,050   |                                |         | 3,350                             | 3,350   | 5,450                    | 5,450   | 15,225            | 11,825 | 10,400 | 9,825           | 6,350 | 4,850 | 5,475             | 3,775 | 2,350 |
| 1,300 | 2,800             | 2,800   | 825                 | 825     | 550                | 1,175   |                                | 0       | 3,300                             | 3,300   | 5,300                    | 5,300   | 15,250            | 11,825 | 10,400 | 9,825           | 6,375 | 4,875 | 5,325             | 3,675 | 2,325 |
| 1,200 | 2,875             | 2,875   | 900                 | 900     | 750                | 1,275   |                                | 325     | 3,250                             | 3,250   | 5,150                    | 5,150   | 15,250            | 11,850 | 10,425 | 9,850           | 6,375 | 4,900 | 5,175             | 3,575 | 2,275 |
| 1,100 | 2,875             | 2,875   | 975                 | 975     | 900                | 1,350   |                                | 575     | 3,175                             | 3,175   | 5,000                    | 5,000   | 15,250            | 11,850 | 10,425 | 9,850           | 6,400 | 4,925 | 5,025             | 3,450 | 2,200 |
| 1,050 | 2,875             | 2,875   | 1,025               | 1,025   | 950                | 1,400   |                                | 675     | 3,150                             | 3,150   | 4,900                    | 4,900   | 15,275            | 11,850 | 10,450 | 9,850           | 6,400 | 4,950 | 4,925             | 3,400 | 2,150 |
| 1,000 | 2,875             | 2,875   | 1,025               | 1,025   | 1,000              | 1,425   | 0                              | 750     | 3,100                             | 3,100   | 4,850                    | 4,850   | 15,275            | 11,850 | 10,450 | 9,850           | 6,425 | 4,950 | 4,850             | 3,350 | 2,100 |
| 950   | 2,875             | 2,875   | 1,050               | 1,100   | 1,050              | 1,475   | 250                            | 800     | 3,050                             | 3,050   | 4,750                    | 4,750   | 15,275            | 11,850 | 10,450 | 9,850           | 6,425 | 4,975 | 4,750             | 3,325 | 2,050 |
| 900   | 2,875             | 2,875   | 1,075               | 1,125   | 1,100              | 1,500   | 400                            | 850     | 3,000                             | 3,000   | 4,700                    | 4,700   | 15,275            | 11,850 | 10,450 | 9,875           | 6,425 | 4,975 | 4,650             | 3,275 | 2,000 |
| 850   | 2,875             | 2,875   | 1,075               | 1,175   | 1,150              | 1,525   | 500                            | 900     | 2,950                             | 2,950   | 4,600                    | 4,600   | 15,275            | 11,850 | 10,450 | 9,875           | 6,425 | 4,975 | 4,550             | 3,250 | 1,925 |
| 800   | 2,875             | 2,875   | 1,050               | 1,200   | 1,175              | 1,550   | 575                            | 950     | 2,900                             | 2,900   | 4,550                    | 4,550   | 15,275            | 11,875 | 10,450 | 9,875           | 6,450 | 5,000 | 4,475             | 3,200 | 1,875 |
| 750   | 2,875             | 2,875   | 1,050               | 1,225   | 1,200              | 1,575   | 625                            | 1,000   | 2,875                             | 2,875   | 4,450                    | 4,450   | 15,275            | 11,875 | 10,475 | 9,875           | 6,450 | 5,000 | 4,425             | 3,175 | 1,825 |
| 700   | 2,875             | 2,875   | 1,050               | 1,275   | 1,225              | 1,600   | 700                            | 1,025   | 2,825                             | 2,825   | 4,400                    | 4,400   | 15,275            | 11,875 | 10,475 | 9,875           | 6,450 | 5,000 | 4,350             | 3,125 | 1,775 |
| 650   | 2,875             | 2,875   | 1,025               | 1,300   | 1,275              | 1,625   | 750                            | 1,075   | 2,775                             | 2,775   | 4,350                    | 4,350   | 15,300            | 11,875 | 10,475 | 9,900           | 6,475 | 5,000 | 4,300             | 3,100 | 1,725 |
| 600   | 2,875             | 2,875   | 1,025               | 1,325   | 1,300              | 1,650   | 775                            | 1,100   | 2,750                             | 2,750   | 4,250                    | 4,250   | 15,300            | 11,875 | 10,475 | 9,900           | 6,475 | 5,025 | 4,225             | 3,050 | 1,700 |
| 550   | 2,875             | 2,875   | 1,025               | 1,325   | 1,300              | 1,650   | 825                            | 1,125   | 2,700                             | 2,700   | 4,200                    | 4,200   | 15,300            | 11,875 | 10,475 | 9,900           | 6,475 | 5,025 | 4,175             | 3,025 | 1,675 |
| 500   | 2,875             | 2,875   | 1,050               | 1,350   | 1,325              | 1,675   | 850                            | 1,150   | 2,650                             | 2,650   | 4,150                    | 4,150   | 15,300            | 11,875 | 10,475 | 9,900           | 6,475 | 5,025 | 4,125             | 3,000 | 1,700 |
| 450   | 2,875             | 2,875   | 1,050               | 1,375   | 1,350              | 1,700   | 875                            | 1,150   | 2,625                             | 2,625   | 4,100                    | 4,100   | 15,250            | 11,800 | 10,300 | 9,750           | 6,450 | 5,025 | 4,050             | 2,975 | 1,700 |
| 400   | 2,850             | 2,850   | 1,075               | 1,375   | 1,375              | 1,700   | 900                            | 1,175   | 2,600                             | 2,600   | 4,050                    | 4,050   | 14,450            | 11,200 | 9,825  | 9,250           | 6,125 | 4,800 | 4,000             | 2,950 | 1,725 |
| 300   | 2,800             | 2,800   | 1,100               | 1,425   | 1,400              | 1,725   | 925                            | 1,200   | 2,500                             | 2,500   | 3,950                    | 3,950   | 12,850            | 9,950  | 8,750  | 8,300           | 5,500 | 4,325 | 3,900             | 2,900 | 1,750 |
| 200   | 2,700             | 2,700   | 1,125               | 1,425   | 1,400              | 1,750   | 950                            | 1,225   | 2,450                             | 2,450   | 3,850                    | 3,850   | 11,400            | 8,850  | 7,700  | 7,400           | 4,850 | 3,850 | 3,825             | 2,850 | 1,750 |
| 100   | 2,525             | 2,525   | 1,150               | 1,450   | 1,425              | 1,750   | 975                            | 1,250   | 2,400                             | 2,400   | 3,800                    | 3,800   | 9,850             | 7,700  | 6,700  | 6,450           | 4,225 | 3,375 | 3,725             | 2,800 | 1,750 |
| 0     | 2,250             | 2,250   | 1,225               | 1,450   | 1,425              | 1,750   | 975                            | 1,250   | 2,350                             | 2,350   | 3,700                    | 3,700   | 8,250             | 6,700  | 5,700  | 5,500           | 3,650 | 2,900 | 3,650             | 2,775 | 1,775 |

HOB<sub>fs</sub> = 327mLow HOB<sub>min</sub> = 310mHigh HOB<sub>min</sub> = 702HOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 8.6a.



# CASUALTY and DAMAGE Tables Heavy Guided Missile

INDIA/200 KT

All figures in meters

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III  | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 1,700 |                               |                                  |                              | 0                                            |                                        |                                | 7,300           | 3,250                        | 1,225                        | 9,575                      |                          |            | 0-5          |            |                 |            | 0-600       |            |
| 1,600 |                               |                                  |                              | 250                                          |                                        | 0                              | 7,325           | 3,300                        | 1,350                        | 9,525                      |                          |            | 0-10         |            |                 |            | 0-850       |            |
| 1,500 |                               |                                  |                              | 575                                          |                                        | 2,000                          | 7,350           | 3,350                        | 1,475                        | 9,450                      |                          |            | 0-10         |            |                 |            | 0-1,000     |            |
| 1,400 | 0                             |                                  |                              | 825                                          |                                        | 2,250                          | 7,375           | 3,375                        | 1,575                        | 9,375                      |                          | 0          | 0-20         |            |                 | 0          | 0-1,150     |            |
| 1,300 | 150                           |                                  |                              | 1,075                                        | 0                                      | 2,275                          | 7,375           | 3,425                        | 1,650                        | 9,300                      |                          | 0-5        | 0-35         |            |                 | 0-400      | 0-1,250     |            |
| 1,200 | 450                           |                                  |                              | 1,275                                        | 1,625                                  | 2,275                          | 7,400           | 3,450                        | 1,725                        | 9,225                      |                          | 0-5        | 5-60         |            |                 | 0-650      | 400-1,350   |            |
| 1,100 | 750                           |                                  | 0                            | 1,425                                        | 1,650                                  | 2,250                          | 7,425           | 3,500                        | 1,800                        | 9,125                      |                          | 0-10       | 5-120        |            |                 | 0-800      | 600-1,450   |            |
| 1,050 | 950                           |                                  | 150                          | 1,500                                        | 1,650                                  | 2,250                          | 7,425           | 3,500                        | 1,825                        | 9,075                      | 0                        | 0-15       | 10-160       |            | 0               | 0-850      | 700-1,500   |            |
| 1,000 | 1,350                         | 0                                | 300                          | 1,550                                        | 1,675                                  | 2,250                          | 7,425           | 3,525                        | 1,850                        | 9,025                      | 0-5                      | 0-20       | 10-230       |            | 0-50            | 0-950      | 800-1,500   |            |
| 950   | 1,575                         | 100                              | 425                          | 1,600                                        | 1,675                                  | 2,250                          | 7,450           | 3,525                        | 1,875                        | 8,975                      | 0-5                      | 0-30       | 15-320       |            | 0-300           | 0-1,000    | 850-1,550   |            |
| 900   | 1,675                         | 200                              | 550                          | 1,650                                        | 1,700                                  | 2,250                          | 7,450           | 3,550                        | 1,900                        | 8,925                      | 0-5                      | 0-40       | 20-440       |            | 0-450           | 0-1,050    | 900-1,600   |            |
| 850   | 1,750                         | 300                              | 650                          | 1,700                                        | 1,725                                  | 2,225                          | 7,450           | 3,550                        | 1,925                        | 8,875                      | 0-10                     | 5-55       | 25-630       |            | 0-550           | 50-1,050   | 950-1,600   |            |
| 800   | 1,800                         | 400                              | 725                          | 1,750                                        | 1,725                                  | 2,225                          | 7,450           | 3,575                        | 1,950                        | 8,825                      | 0-10                     | 5-75       | 40-890       |            | 0-600           | 300-1,100  | 1,000-1,650 |            |
| 750   | 1,875                         | 475                              | 800                          | 1,800                                        | 1,725                                  | 2,225                          | 7,450           | 3,575                        | 1,950                        | 8,775                      | 0-15                     | 5-110      | 55-1,320     |            | 0-700           | 400-1,150  | 1,050-1,650 |            |
| 700   | 1,925                         | 575                              | 850                          | 1,850                                        | 1,725                                  | 2,225                          | 7,475           | 3,600                        | 1,975                        | 8,725                      | 0-20                     | 10-165     | 80-1,980     |            | 0-750           | 500-1,200  | 1,050-1,700 |            |
| 650   | 1,975                         | 675                              | 900                          | 1,875                                        | 1,750                                  | 2,225                          | 7,475           | 3,600                        | 2,000                        | 8,675                      | 0-30                     | 15-260     | 125-3,120    |            | 0-800           | 550-1,200  | 1,100-1,700 |            |
| 600   | 2,025                         | 775                              | 950                          | 1,925                                        | 1,750                                  | 2,200                          | 7,475           | 3,600                        | 2,025                        | 8,600                      | 5-45                     | 20-400     | 200-4,800    | 0          | 50-800          | 600-1,250  | 1,100-1,700 | 0          |
| 550   | 2,050                         | 900                              | 1,000                        | 1,975                                        | 1,775                                  | 2,200                          | 7,475           | 3,625                        | 2,025                        | 8,550                      | 5-70                     | 25-620     | 300-7,440    | 0-5        | 250-850         | 650-1,250  | 1,150-1,750 | 0-50       |
| 500   | 2,100                         | 1,050                            | 1,050                        | 2,000                                        | 1,775                                  | 2,200                          | 7,475           | 3,625                        | 2,050                        | 8,475                      | 5-110                    | 40-1,000   | 480-12,000   | 0-5        | 350-900         | 700-1,300  | 1,150-1,750 | 0-250      |
| 450   | 2,150                         | 1,150                            | 1,075                        | 2,050                                        | 1,800                                  | 2,200                          | 7,450           | 3,625                        | 2,075                        | 8,425                      | 10-210                   | 80-1,900   | 920-22,800   | 0-5        | 400-900         | 750-1,300  | 1,200-1,750 | 0-350      |
| 400   | 2,175                         | 1,225                            | 1,125                        | 2,075                                        | 1,800                                  | 2,200                          | 7,075           | 3,475                        | 2,000                        | 8,350                      | 15-370                   | 135-3,300  | 1,590-39,600 | 0-10       | 450-950         | 750-1,300  | 1,200-1,800 | 0-400      |
| 300   | 2,175                         | 1,275                            | 1,175                        | 2,125                                        | 1,825                                  | 2,075                          | 6,300           | 3,125                        | 1,800                        | 8,225                      | FALLOUT GOVERNS          |            |              |            |                 |            |             |            |
| 200   | 2,125                         | 1,300                            | 1,200                        | 2,100                                        | 1,775                                  | 2,050                          | 5,550           | 2,725                        | 1,600                        | 8,100                      |                          |            |              |            |                 |            |             |            |
| 100   | 1,950                         | 1,225                            | 1,100                        | 1,950                                        | 1,700                                  | 1,925                          | 4,775           | 2,450                        | 1,425                        | 7,950                      |                          |            |              |            |                 |            |             |            |
| 0     | 1,450                         | 975                              | 800                          | 1,650                                        | 1,350                                  | 1,725                          | 4,025           | 2,100                        | 1,225                        | 7,800                      |                          |            |              |            |                 |            |             |            |

Figure 8.6a continued.

HGM 1

<sup>1</sup>Heavy Guided Missile.

CASUALTY and DAMAGE Tables  
Heavy Guided Missile

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in l-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                    |         |                                |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 2,200 |                   | 0       | 275                 | 275     |                    |         |                                |         | 4,650                             | 4,650   | 7,800                    | 7,800   | 21,700            | 17,700 | 15,400 | 14,200          | 9,100 | 7,100 | 7,800             | 5,350 | 2,550 |
| 2,100 |                   | 400     | 525                 | 525     |                    | 0       |                                |         | 4,650                             | 4,650   | 7,800                    | 7,650   | 21,700            | 17,700 | 15,500 | 14,300          | 9,200 | 7,100 | 7,700             | 5,275 | 2,825 |
| 2,000 | 0                 | 750     | 750                 | 750     |                    | 200     |                                |         | 4,650                             | 4,650   | 7,550                    | 7,550   | 21,700            | 17,700 | 15,500 | 14,300          | 8,200 | 7,100 | 7,575             | 5,200 | 3,050 |
| 1,900 | 3,550             | 3,550   | 925                 | 925     |                    | 650     |                                |         | 4,600                             | 4,600   | 7,400                    | 7,400   | 21,700            | 17,700 | 15,500 | 14,300          | 9,200 | 7,200 | 7,425             | 5,125 | 3,175 |
| 1,800 | 4,000             | 4,000   | 1,075               | 1,075   |                    | 900     |                                |         | 4,500                             | 4,500   | 7,250                    | 7,250   | 21,700            | 17,700 | 15,500 | 14,300          | 9,200 | 7,200 | 7,275             | 5,025 | 3,175 |
| 1,700 | 4,100             | 4,100   | 1,175               | 1,175   | 0                  | 1,075   |                                |         | 4,450                             | 4,450   | 7,100                    | 7,100   | 21,700            | 17,700 | 15,500 | 14,300          | 9,200 | 7,200 | 7,150             | 4,925 | 3,125 |
| 1,600 | 4,150             | 4,150   | 1,250               | 1,250   | 400                | 1,225   |                                |         | 4,350                             | 4,350   | 6,900                    | 6,900   | 21,700            | 17,700 | 15,500 | 14,300          | 9,300 | 7,200 | 6,975             | 4,825 | 3,075 |
| 1,500 | 4,150             | 4,150   | 1,325               | 1,325   | 675                | 1,325   |                                | 0       | 4,250                             | 4,250   | 6,750                    | 6,750   | 21,700            | 17,700 | 15,500 | 14,300          | 9,300 | 7,200 | 6,825             | 4,700 | 3,000 |
| 1,400 | 4,150             | 4,150   | 1,400               | 1,400   | 875                | 1,450   |                                | 325     | 4,150                             | 4,150   | 6,600                    | 6,600   | 21,700            | 17,700 | 15,500 | 14,300          | 9,300 | 7,300 | 6,650             | 4,600 | 2,900 |
| 1,300 | 4,150             | 4,150   | 1,425               | 1,425   | 1,000              | 1,525   | 0                              | 625     | 4,100                             | 4,100   | 6,450                    | 6,450   | 21,700            | 17,700 | 15,500 | 14,300          | 9,300 | 7,300 | 6,450             | 4,500 | 2,800 |
| 1,200 | 4,150             | 4,150   | 1,450               | 1,450   | 1,125              | 1,600   | 275                            | 800     | 4,000                             | 4,000   | 6,300                    | 6,300   | 21,800            | 17,700 | 15,600 | 14,400          | 9,300 | 7,300 | 6,275             | 4,425 | 2,675 |
| 1,100 | 4,150             | 4,150   | 1,450               | 1,450   | 1,225              | 1,675   | 400                            | 925     | 3,900                             | 3,900   | 6,200                    | 6,200   | 21,800            | 17,800 | 15,600 | 14,400          | 9,300 | 7,300 | 6,100             | 4,350 | 2,550 |
| 1,050 | 4,150             | 4,150   | 1,425               | 1,425   | 1,275              | 1,725   | 475                            | 1,000   | 3,850                             | 3,850   | 6,100                    | 6,100   | 21,800            | 17,800 | 15,600 | 14,400          | 9,300 | 7,300 | 6,050             | 4,325 | 2,500 |
| 1,000 | 4,150             | 4,150   | 1,425               | 1,425   | 1,300              | 1,750   | 575                            | 1,050   | 3,850                             | 3,850   | 6,050                    | 6,050   | 21,800            | 17,800 | 15,600 | 14,400          | 9,300 | 7,300 | 5,975             | 4,275 | 2,450 |
| 950   | 4,150             | 4,150   | 1,400               | 1,400   | 1,350              | 1,775   | 650                            | 1,075   | 3,800                             | 3,800   | 6,000                    | 6,000   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,300 | 5,900             | 4,250 | 2,400 |
| 900   | 4,150             | 4,150   | 1,400               | 1,400   | 1,375              | 1,800   | 725                            | 1,125   | 3,750                             | 3,750   | 5,900                    | 5,900   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,300 | 5,850             | 4,200 | 2,375 |
| 850   | 4,150             | 4,150   | 1,400               | 1,400   | 1,400              | 1,825   | 775                            | 1,175   | 3,700                             | 3,700   | 5,850                    | 5,850   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,400 | 5,775             | 4,175 | 2,325 |
| 800   | 4,150             | 4,150   | 1,375               | 1,450   | 1,450              | 1,850   | 825                            | 1,200   | 3,700                             | 3,700   | 5,800                    | 5,800   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,400 | 5,725             | 4,150 | 2,300 |
| 750   | 4,150             | 4,150   | 1,375               | 1,475   | 1,475              | 1,850   | 875                            | 1,225   | 3,650                             | 3,650   | 5,750                    | 5,750   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,400 | 5,675             | 4,125 | 2,275 |
| 700   | 4,150             | 4,150   | 1,350               | 1,500   | 1,500              | 1,875   | 925                            | 1,250   | 3,600                             | 3,600   | 5,650                    | 5,650   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,400 | 5,600             | 4,075 | 2,275 |
| 650   | 4,150             | 4,150   | 1,350               | 1,525   | 1,600              | 1,900   | 950                            | 1,300   | 3,550                             | 3,550   | 5,600                    | 5,600   | 21,800            | 17,800 | 15,400 | 14,300          | 9,400 | 7,300 | 5,550             | 4,050 | 2,250 |
| 600   | 4,150             | 4,150   | 1,350               | 1,550   | 1,700              | 1,925   | 975                            | 1,325   | 3,550                             | 3,550   | 5,550                    | 5,550   | 20,800            | 17,200 | 15,000 | 13,900          | 9,100 | 7,100 | 5,500             | 4,025 | 2,250 |
| 550   | 4,125             | 4,125   | 1,350               | 1,550   | 1,750              | 1,925   | 1,025                          | 1,350   | 3,500                             | 3,500   | 5,500                    | 5,500   | 19,400            | 16,500 | 14,400 | 13,400          | 8,700 | 6,800 | 5,450             | 4,000 | 2,250 |
| 500   | 4,100             | 4,100   | 1,350               | 1,575   | 1,800              | 1,950   | 1,050                          | 1,350   | 3,450                             | 3,450   | 5,450                    | 5,450   | 18,500            | 15,900 | 13,900 | 12,800          | 8,400 | 6,600 | 5,400             | 3,975 | 2,250 |
| 400   | 4,025             | 4,025   | 1,400               | 1,600   | 1,825              | 1,975   | 1,075                          | 1,375   | 3,400                             | 3,400   | 5,300                    | 5,300   | 17,600            | 14,700 | 12,800 | 11,800          | 7,800 | 6,100 | 5,300             | 3,925 | 2,275 |
| 300   | 3,925             | 3,925   | 1,450               | 1,625   | 1,850              | 2,000   | 1,125                          | 1,400   | 3,350                             | 3,350   | 5,200                    | 5,200   | 16,000            | 13,500 | 11,700 | 10,800          | 7,100 | 5,600 | 5,200             | 3,875 | 2,300 |
| 200   | 3,775             | 3,775   | 1,500               | 1,650   | 1,825              | 2,000   | 1,125                          | 1,425   | 3,300                             | 3,300   | 5,100                    | 5,100   | 14,400            | 12,200 | 10,600 | 9,800           | 6,500 | 5,200 | 5,125             | 3,825 | 2,325 |
| 100   | 3,550             | 3,550   | 1,575               | 1,650   | 1,700              | 2,000   | 1,150                          | 1,450   | 3,250                             | 3,250   | 5,000                    | 5,000   | 13,000            | 11,000 | 9,500  | 8,800           | 5,900 | 4,700 | 5,050             | 3,800 | 2,375 |
| 0     | 3,250             | 3,250   | 1,675               | 1,675   | 1,650              | 2,000   | 1,150                          | 1,450   | 3,250                             | 3,250   | 4,450                    | 4,450   | 11,500            | 9,700  | 8,500  | 7,900           | 5,300 | 4,200 | 4,975             | 3,775 | 2,400 |

HOB<sub>fs</sub> = 445mLow HOB<sub>min</sub> = 420mHigh HOB<sub>min</sub> = 953mHOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 8.6b.

**CASUALTY and DAMAGE Tables**  
**Heavy Guided Missile**  
*All figures in meters*

**JULIETT/500 KT**

| 23    | 24                           | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |
|-------|------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>veh | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |
|       |                              |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity of GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |
|       |                              |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III  | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 2,200 |                              |                                  |                              | 275                                          |                                        | 0                              | 10,475          | 4,925                        | 2,200                        | 12,925                     |                          |            |              |            |                 |            |             |            |
| 2,100 |                              |                                  |                              | 625                                          |                                        | 3,325                          | 10,500          | 4,975                        | 2,300                        | 12,875                     |                          |            |              |            |                 |            |             |            |
| 2,000 |                              |                                  |                              | 925                                          |                                        | 3,350                          | 10,500          | 5,000                        | 2,375                        | 12,800                     |                          |            | 0            |            |                 |            | 0           |            |
| 1,900 | 0                            |                                  |                              | 1,200                                        |                                        | 3,350                          | 10,525          | 5,050                        | 2,450                        | 12,725                     |                          |            | 0-5          |            |                 |            | 0-450       |            |
| 1,800 | 75                           |                                  |                              | 1,450                                        | 0                                      | 3,325                          | 10,550          | 5,075                        | 2,525                        | 12,650                     |                          |            | 0-5          |            |                 |            | 0-750       |            |
| 1,700 | 425                          |                                  |                              | 1,675                                        | 2,150                                  | 3,300                          | 10,575          | 5,125                        | 2,600                        | 12,575                     |                          |            | 0-10         |            |                 |            | 0-1,000     |            |
| 1,600 | 725                          |                                  |                              | 1,875                                        | 2,225                                  | 3,275                          | 10,575          | 5,150                        | 2,675                        | 12,475                     |                          | 0          | 0-15         |            |                 | 0          | 0-1,150     |            |
| 1,500 | 1,050                        |                                  | 0                            | 2,050                                        | 2,250                                  | 3,250                          | 10,600          | 5,175                        | 2,725                        | 12,400                     |                          | 0-5        | 0-25         |            |                 | 0-50       | 0-1,250     |            |
| 1,400 | 1,525                        | 0                                | 300                          | 2,200                                        | 2,275                                  | 3,200                          | 10,600          | 5,200                        | 2,775                        | 12,300                     |                          | 0-5        | 5-50         |            |                 | 0-550      | 50-1,400    |            |
| 1,300 | 2,250                        | 125                              | 600                          | 2,325                                        | 2,300                                  | 3,175                          | 10,625          | 5,225                        | 2,825                        | 12,200                     |                          | 0-10       | 5-85         |            |                 | 0-750      | 550-1,500   |            |
| 1,200 | 2,450                        | 325                              | 825                          | 2,400                                        | 2,325                                  | 3,150                          | 10,625          | 5,250                        | 2,875                        | 12,100                     | 0                        | 0-15       | 10-150       |            | 0               | 0-900      | 750-1,550   |            |
| 1,100 | 2,600                        | 525                              | 1,025                        | 2,525                                        | 2,350                                  | 3,125                          | 10,650          | 5,275                        | 2,900                        | 12,000                     | 0-5                      | 0-25       | 15-290       |            | 0-350           | 0-1,050    | 900-1,650   |            |
| 1,050 | 2,650                        | 625                              | 1,100                        | 2,575                                        | 2,350                                  | 3,125                          | 10,650          | 5,275                        | 2,925                        | 11,950                     | 0-5                      | 0-35       | 20-390       |            | 0-500           | 0-1,100    | 950-1,650   |            |
| 1,000 | 2,700                        | 750                              | 1,175                        | 2,600                                        | 2,350                                  | 3,100                          | 10,650          | 5,300                        | 2,950                        | 11,900                     | 0-10                     | 5-50       | 25-570       |            | 0-600           | 50-1,150   | 1,000-1,700 |            |
| 950   | 2,775                        | 850                              | 1,225                        | 2,650                                        | 2,375                                  | 3,075                          | 10,650          | 5,300                        | 2,950                        | 11,825                     | 0-10                     | 5-65       | 35-780       |            | 0-650           | 300-1,200  | 1,050-1,750 |            |
| 900   | 2,825                        | 950                              | 1,275                        | 2,700                                        | 2,375                                  | 3,050                          | 10,650          | 5,325                        | 2,975                        | 11,775                     | 0-10                     | 5-90       | 45-1,080     |            | 0-750           | 450-1,200  | 1,100-1,750 |            |
| 850   | 2,875                        | 1,050                            | 1,350                        | 2,750                                        | 2,375                                  | 3,050                          | 10,675          | 5,325                        | 3,000                        | 11,725                     | 0-15                     | 10-130     | 65-1,560     |            | 0-800           | 550-1,250  | 1,150-1,800 |            |
| 800   | 2,925                        | 1,150                            | 1,400                        | 2,800                                        | 2,400                                  | 3,025                          | 10,675          | 5,325                        | 3,000                        | 11,675                     | 0-25                     | 10-185     | 90-2,220     |            | 0-850           | 600-1,300  | 1,150-1,800 |            |
| 750   | 2,975                        | 1,275                            | 1,450                        | 2,825                                        | 2,400                                  | 3,000                          | 10,675          | 5,350                        | 3,025                        | 11,600                     | 0-35                     | 15-275     | 135-3,300    | 0          | 0-900           | 700-1,300  | 1,200-1,800 | 0          |
| 700   | 3,025                        | 1,450                            | 1,500                        | 2,875                                        | 2,400                                  | 2,975                          | 10,675          | 5,350                        | 3,025                        | 11,550                     | 5-50                     | 20-420     | 200-4,950    | 0-5        | 50-950          | 750-1,350  | 1,250-1,850 | 0-50       |
| 650   | 3,050                        | 1,600                            | 1,525                        | 2,925                                        | 2,425                                  | 2,975                          | 10,625          | 5,350                        | 3,100                        | 11,475                     | 5-75                     | 30-650     | 320-7,090    | 0-5        | 300-950         | 800-1,350  | 1,250-1,850 | 0-300      |
| 600   | 3,100                        | 1,700                            | 1,575                        | 2,950                                        | 2,450                                  | 2,950                          | 10,250          | 5,175                        | 3,000                        | 11,425                     | 5-110                    | 40-1,000   | 480-12,000   | 0-5        | 400-1,000       | 800-1,400  | 1,300-1,900 | 0-400      |
| 550   | 3,125                        | 1,750                            | 1,625                        | 3,000                                        | 2,450                                  | 2,925                          | 9,875           | 5,000                        | 2,900                        | 11,350                     | 10-175                   | 65-1,550   | 750-18,600   | 0-5        | 450-1,050       | 850-1,400  | 1,300-1,900 | 0-450      |
| 500   | 3,150                        | 1,800                            | 1,650                        | 3,025                                        | 2,450                                  | 2,900                          | 9,475           | 4,825                        | 2,800                        | 11,300                     | 15-280                   | 100-2,500  | 1,200-30,000 | 0-10       | 500-1,050       | 900-1,450  | 1,350-1,900 | 0-500      |
| 400   | 3,125                        | 1,825                            | 1,725                        | 3,075                                        | 2,475                                  | 2,850                          | 8,725           | 4,450                        | 2,575                        | 11,150                     | FALLOUT GOVERNS          |            |              |            |                 |            |             |            |
| 300   | 3,075                        | 1,850                            | 1,750                        | 3,050                                        | 2,425                                  | 2,825                          | 7,950           | 4,100                        | 2,375                        | 11,025                     |                          |            |              |            |                 |            |             |            |
| 200   | 2,975                        | 1,825                            | 1,675                        | 2,925                                        | 2,375                                  | 2,750                          | 7,200           | 3,750                        | 2,175                        | 10,875                     |                          |            |              |            |                 |            |             |            |
| 100   | 2,650                        | 1,700                            | 1,475                        | 2,725                                        | 2,200                                  | 2,625                          | 6,425           | 3,375                        | 1,975                        | 10,750                     |                          |            |              |            |                 |            |             |            |
| 0     | 2,100                        | 1,400                            | 1,150                        | 2,400                                        | 1,900                                  | 2,500                          | 5,675           | 3,025                        | 1,775                        | 10,600                     |                          |            |              |            |                 |            |             |            |

Figure 8.6b continued.

HGM 1

KILO/1,000 KT

**CASUALTY and DAMAGE Tables**  
**Heavy Guided Missile**

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18     | 19     | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |        |        |                   |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |        |        | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod    | Emer   | Neg               | Mod   | Emer  |
| 2,200 | 5,350             | 5,350   | 1,425               | 1,425   |                    | 375     |                                 |         | 5,700                             | 5,700   | 9,150                    | 9,150   | 28,300            | 23,700 | 20,800 | 18,900          | 12,500 | 9,800  | 9,075             | 6,275 | 4,000 |
| 2,100 | 5,450             | 5,450   | 1,525               | 1,525   |                    | 750     |                                 |         | 5,650                             | 5,650   | 9,000                    | 9,000   | 28,300            | 23,700 | 20,800 | 18,900          | 12,500 | 9,800  | 8,925             | 6,150 | 3,925 |
| 2,000 | 5,475             | 5,475   | 1,600               | 1,600   |                    | 1,000   |                                 |         | 5,600                             | 5,600   | 8,800                    | 8,800   | 28,300            | 23,700 | 20,800 | 18,900          | 12,500 | 9,800  | 8,775             | 6,050 | 3,850 |
| 1,900 | 5,475             | 5,475   | 1,675               | 1,675   | 0                  | 1,175   |                                 |         | 5,500                             | 5,500   | 8,600                    | 8,600   | 28,300            | 23,700 | 20,800 | 18,900          | 12,600 | 9,800  | 8,600             | 5,925 | 3,775 |
| 1,800 | 5,450             | 5,450   | 1,725               | 1,725   | 375                | 1,325   |                                 |         | 5,400                             | 5,400   | 8,500                    | 8,500   | 28,400            | 23,700 | 20,800 | 18,900          | 12,600 | 9,800  | 8,450             | 5,825 | 3,700 |
| 1,700 | 5,450             | 5,450   | 1,775               | 1,775   | 700                | 1,450   | 0                               | 0       | 5,350                             | 5,350   | 8,350                    | 8,350   | 28,400            | 23,700 | 20,900 | 18,900          | 12,600 | 9,800  | 8,275             | 5,725 | 3,600 |
| 1,600 | 5,475             | 5,475   | 1,800               | 1,800   | 900                | 1,550   | 125                             | 125     | 5,250                             | 5,250   | 8,200                    | 8,200   | 28,400            | 23,700 | 20,900 | 18,900          | 12,600 | 9,900  | 8,975             | 5,650 | 3,500 |
| 1,500 | 5,475             | 5,475   | 1,825               | 1,825   | 1,075              | 1,650   | 350                             | 550     | 5,150                             | 5,150   | 8,050                    | 8,050   | 28,400            | 23,700 | 20,900 | 18,900          | 12,600 | 9,900  | 7,900             | 5,575 | 3,375 |
| 1,400 | 5,475             | 5,475   | 1,825               | 1,825   | 1,200              | 1,725   | 500                             | 775     | 5,050                             | 5,050   | 7,900                    | 7,900   | 28,400            | 23,700 | 20,900 | 19,000          | 12,600 | 9,900  | 7,725             | 5,500 | 3,250 |
| 1,300 | 5,475             | 5,475   | 1,800               | 1,800   | 1,300              | 1,800   | 600                             | 925     | 4,950                             | 4,950   | 7,750                    | 7,750   | 28,400            | 23,700 | 20,900 | 19,000          | 12,600 | 9,900  | 7,575             | 5,425 | 3,125 |
| 1,200 | 5,475             | 5,475   | 1,775               | 1,775   | 1,400              | 1,875   | 700                             | 1,050   | 4,900                             | 4,900   | 7,600                    | 7,600   | 28,400            | 23,800 | 20,900 | 19,000          | 12,600 | 9,900  | 7,450             | 5,350 | 3,025 |
| 1,100 | 5,475             | 5,475   | 1,750               | 1,750   | 1,475              | 1,925   | 775                             | 1,175   | 4,800                             | 4,800   | 7,450                    | 7,450   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 9,900  | 7,325             | 5,275 | 2,950 |
| 1,050 | 5,475             | 5,475   | 1,750               | 1,750   | 1,500              | 1,975   | 825                             | 1,200   | 4,750                             | 4,750   | 7,400                    | 7,400   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 9,900  | 7,250             | 5,250 | 2,925 |
| 1,000 | 5,475             | 5,475   | 1,725               | 1,725   | 1,550              | 2,000   | 850                             | 1,250   | 4,700                             | 4,700   | 7,350                    | 7,350   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 10,000 | 7,200             | 5,225 | 2,900 |
| 950   | 5,475             | 5,475   | 1,725               | 1,725   | 1,675              | 2,025   | 875                             | 1,300   | 4,650                             | 4,650   | 7,250                    | 7,250   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 10,000 | 7,150             | 5,200 | 2,875 |
| 900   | 5,475             | 5,475   | 1,700               | 1,700   | 1,850              | 2,050   | 925                             | 1,325   | 4,600                             | 4,600   | 7,200                    | 7,200   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 10,000 | 7,075             | 5,150 | 2,875 |
| 850   | 5,475             | 5,475   | 1,700               | 1,700   | 2,025              | 2,050   | 975                             | 1,350   | 4,550                             | 4,550   | 7,150                    | 7,150   | 27,800            | 23,500 | 20,600 | 18,800          | 12,600 | 9,900  | 7,025             | 5,125 | 2,850 |
| 800   | 5,475             | 5,475   | 1,700               | 1,700   | 2,150              | 2,150   | 1,000                           | 1,400   | 4,550                             | 4,550   | 7,100                    | 7,100   | 27,200            | 22,900 | 20,000 | 18,300          | 12,300 | 9,600  | 6,975             | 5,100 | 2,850 |
| 750   | 5,450             | 5,450   | 1,700               | 1,700   | 2,250              | 2,250   | 1,050                           | 1,425   | 4,500                             | 4,500   | 7,050                    | 7,050   | 26,500            | 22,200 | 19,500 | 17,800          | 11,900 | 9,400  | 6,925             | 5,075 | 2,850 |
| 700   | 5,450             | 5,450   | 1,700               | 1,700   | 2,300              | 2,300   | 1,075                           | 1,450   | 4,450                             | 4,450   | 7,000                    | 7,000   | 25,800            | 21,600 | 18,900 | 17,300          | 11,600 | 9,100  | 6,875             | 5,050 | 2,850 |
| 650   | 5,425             | 5,425   | 1,700               | 1,700   | 2,350              | 2,350   | 1,125                           | 1,475   | 4,400                             | 4,400   | 6,950                    | 6,950   | 25,000            | 21,000 | 18,300 | 16,800          | 11,300 | 8,900  | 6,825             | 5,025 | 2,850 |
| 600   | 5,400             | 5,400   | 1,725               | 1,725   | 2,375              | 2,375   | 1,150                           | 1,475   | 4,400                             | 4,400   | 6,900                    | 6,900   | 24,300            | 20,400 | 17,800 | 16,300          | 11,000 | 8,600  | 6,775             | 5,000 | 2,850 |
| 500   | 5,325             | 5,325   | 1,750               | 1,750   | 2,425              | 2,425   | 1,200                           | 1,525   | 4,350                             | 4,350   | 6,800                    | 6,800   | 22,700            | 19,100 | 16,700 | 15,300          | 10,300 | 8,100  | 6,675             | 4,950 | 2,875 |
| 400   | 5,225             | 5,225   | 1,800               | 1,800   | 2,450              | 2,450   | 1,225                           | 1,550   | 4,300                             | 4,300   | 6,650                    | 6,650   | 21,200            | 17,800 | 15,600 | 14,300          | 9,600  | 7,600  | 6,575             | 4,900 | 2,900 |
| 300   | 5,075             | 5,075   | 1,850               | 1,850   | 2,450              | 2,450   | 1,250                           | 1,575   | 4,250                             | 4,250   | 6,550                    | 6,550   | 19,800            | 16,500 | 14,500 | 13,300          | 9,000  | 7,100  | 6,500             | 4,850 | 2,925 |
| 200   | 4,850             | 4,850   | 1,925               | 1,925   | 2,375              | 2,375   | 1,275                           | 1,600   | 4,200                             | 4,200   | 6,500                    | 6,500   | 18,300            | 15,200 | 13,400 | 12,200          | 8,300  | 6,600  | 6,400             | 4,825 | 2,950 |
| 100   | 4,600             | 4,600   | 2,000               | 2,000   | 2,200              | 2,225   | 1,300                           | 1,600   | 4,150                             | 4,150   | 6,400                    | 6,400   | 16,700            | 14,000 | 12,200 | 11,200          | 7,600  | 6,100  | 6,325             | 4,775 | 2,975 |
| 0     | 4,275             | 4,275   | 2,100               | 2,100   | 1,850              | 2,225   | 1,300                           | 1,600   | 4,100                             | 4,100   | 6,300                    | 6,300   | 15,100            | 12,800 | 11,300 | 10,200          | 7,000  | 5,600  | 6,250             | 4,750 | 3,025 |

$HOB_{fs} = 560m$   
 $Low\ HOB_{min} = 530m$   
 $High\ HOB_{min} = 1200m$   
 $HOB_{99} = HOB_{fs} + 3.5\ PE_h\ m$   
 $HOB_{98} = HOB_{fs} + 3.0\ PE_h\ m$   
 $HOB_{90} = HOB_{fs} + 1.9\ PE_h\ m$

Figure 8.6c.

# CASUALTY and DAMAGE Tables Heavy Guided Missile

KILO/1,000 KT

All figures in meters

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (Rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            |                          |            |             |            |                 |            |             |            |
| 2,200 | 375                           |                                  |                              | 2,075                                        | 0                                      | 4,275                          | 13,925          | 6,875                        | 3,600                        | 15,875                     |                          |            |             |            |                 |            |             |            |
| 2,100 | 700                           |                                  |                              | 2,300                                        | 2,750                                  | 4,250                          | 13,950          | 6,900                        | 3,650                        | 15,800                     |                          |            | 0           |            |                 |            | 0           |            |
| 2,000 | 1,000                         |                                  |                              | 2,500                                        | 2,775                                  | 4,200                          | 13,950          | 6,950                        | 3,700                        | 15,725                     |                          |            | 0-5         |            |                 |            | 0-450       |            |
| 1,900 | 1,350                         |                                  | 0                            | 2,675                                        | 2,800                                  | 4,150                          | 13,975          | 6,975                        | 3,750                        | 15,625                     |                          |            | 0-5         |            |                 |            | 0-800       |            |
| 1,800 | 1,775                         | 0                                | 275                          | 2,850                                        | 2,825                                  | 4,100                          | 13,975          | 7,000                        | 3,800                        | 15,525                     |                          |            | 0-10        |            |                 |            | 0-1,000     |            |
| 1,700 | 2,675                         | 25                               | 600                          | 2,975                                        | 2,850                                  | 4,050                          | 14,000          | 7,025                        | 3,850                        | 15,450                     |                          |            | 0-15        |            |                 | 0          | 0-1,050     |            |
| 1,600 | 3,075                         | 225                              | 875                          | 3,100                                        | 2,875                                  | 4,000                          | 14,000          | 7,050                        | 3,900                        | 15,350                     |                          | 0-5        | 0-30        |            |                 | 0-400      | 0-1,300     |            |
| 1,500 | 3,275                         | 450                              | 1,125                        | 3,200                                        | 2,900                                  | 3,975                          | 14,025          | 7,075                        | 3,925                        | 15,250                     |                          | 0-5        | 5-50        |            |                 | 0-700      | 50-1,400    |            |
| 1,400 | 3,400                         | 675                              | 1,325                        | 3,300                                        | 2,925                                  | 3,925                          | 14,025          | 7,075                        | 3,975                        | 15,125                     | 0                        | 0-10       | 5-100       |            | 0               | 0-900      | 550-1,500   |            |
| 1,300 | 3,525                         | 875                              | 1,500                        | 3,400                                        | 2,950                                  | 3,900                          | 14,050          | 7,100                        | 4,000                        | 15,025                     | 0-5                      | 0-15       | 10-170      |            | 0-50            | 0-1,050    | 750-1,600   |            |
| 1,200 | 3,650                         | 1,100                            | 1,600                        | 3,500                                        | 2,950                                  | 3,875                          | 14,050          | 7,125                        | 4,025                        | 14,925                     | 0-5                      | 0-25       | 15-300      |            | 0-500           | 0-1,150    | 900-1,700   |            |
| 1,100 | 3,750                         | 1,325                            | 1,725                        | 3,600                                        | 2,975                                  | 3,850                          | 14,050          | 7,125                        | 4,075                        | 14,800                     | 0-10                     | 5-50       | 25-580      |            | 0-700           | 50-1,250   | 1,050-1,750 |            |
| 1,050 | 3,800                         | 1,425                            | 1,800                        | 3,650                                        | 2,975                                  | 3,825                          | 14,050          | 7,150                        | 4,075                        | 14,750                     | 0-10                     | 5-65       | 35-780      |            | 0-800           | 350-13,00  | 1,100-1,800 |            |
| 1,000 | 3,850                         | 1,550                            | 1,850                        | 3,700                                        | 3,000                                  | 3,800                          | 14,075          | 7,150                        | 4,100                        | 14,675                     | 0-15                     | 5-95       | 50-1,140    |            | 0-850           | 500-1,350  | 1,150-1,800 |            |
| 950   | 3,900                         | 1,675                            | 1,900                        | 3,725                                        | 3,000                                  | 3,775                          | 14,075          | 7,150                        | 4,100                        | 14,625                     | 0-15                     | 10-130     | 65-1,560    |            | 0-900           | 600-1,400  | 1,200-1,850 |            |
| 900   | 3,950                         | 1,850                            | 1,950                        | 3,775                                        | 3,025                                  | 3,775                          | 14,075          | 7,175                        | 4,125                        | 14,575                     | 0-20                     | 10-180     | 90-2,160    |            | 0-950           | 650-1,400  | 1,200-1,850 |            |
| 850   | 4,000                         | 2,025                            | 2,000                        | 3,825                                        | 3,025                                  | 3,750                          | 13,800          | 7,075                        | 4,125                        | 14,500                     | 0-30                     | 15-260     | 125-3,120   |            | 0-1,000         | 700-1,450  | 1,250-1,900 |            |
| 800   | 4,050                         | 2,150                            | 2,050                        | 3,875                                        | 3,050                                  | 3,750                          | 13,400          | 6,900                        | 4,025                        | 14,450                     | 5-45                     | 15-370     | 180-4,440   | 0          | 50-1,050        | 800-1,450  | 1,300-1,900 | 0          |
| 750   | 4,100                         | 2,250                            | 2,075                        | 3,900                                        | 3,050                                  | 3,725                          | 13,025          | 6,700                        | 3,925                        | 14,375                     | 5-65                     | 25-550     | 270-6,600   | 0-5        | 300-1,100       | 850-1,500  | 1,300-1,950 | 0-50       |
| 700   | 4,125                         | 2,300                            | 2,125                        | 3,950                                        | 3,050                                  | 3,700                          | 12,625          | 6,525                        | 3,825                        | 14,325                     | 5-95                     | 35-835     | 400-9,900   | 0-5        | 400-1,100       | 900-1,500  | 1,350-1,950 | 0-300      |
| 650   | 4,125                         | 2,350                            | 2,175                        | 3,975                                        | 3,075                                  | 3,675                          | 12,225          | 6,350                        | 3,725                        | 14,250                     | 10-145                   | 55-1,300   | 63-15,600   | 0-5        | 500-1,150       | 900-1,550  | 1,350-1,950 | 0-400      |
| 600   | 4,150                         | 2,375                            | 2,200                        | 4,000                                        | 3,075                                  | 3,650                          | 11,850          | 6,150                        | 3,625                        | 14,175                     | 10-220                   | 80-2,000   | 960-24,000  | 0-10       | 550-12,00       | 950-1,550  | 1,400-2,000 | 0-450      |
| 500   | 4,125                         | 2,425                            | 2,275                        | 4,050                                        | 3,075                                  | 3,625                          | 11,050          | 5,775                        | 3,400                        | 14,050                     | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |
| 400   | 4,075                         | 2,450                            | 2,325                        | 4,025                                        | 3,100                                  | 3,575                          | 10,275          | 5,400                        | 3,200                        | 13,925                     |                          |            |             |            |                 |            |             |            |
| 300   | 4,000                         | 2,450                            | 2,275                        | 3,950                                        | 3,075                                  | 3,475                          | 9,475           | 5,050                        | 3,000                        | 13,775                     |                          |            |             |            |                 |            |             |            |
| 200   | 3,825                         | 2,375                            | 2,125                        | 3,975                                        | 3,050                                  | 3,400                          | 8,700           | 4,675                        | 2,800                        | 13,625                     |                          |            |             |            |                 |            |             |            |
| 100   | 3,350                         | 2,200                            | 1,875                        | 3,500                                        | 2,825                                  | 3,275                          | 7,925           | 4,300                        | 2,575                        | 13,500                     |                          |            |             |            |                 |            |             |            |
| 0     | 2,775                         | 1,850                            | 1,500                        | 3,150                                        | 2,525                                  | 3,200                          | 7,125           | 3,925                        | 2,375                        | 13,350                     |                          |            |             |            |                 |            |             |            |

Figure 8.6c continued.

HGM 1

<sup>1</sup>Heavy Guided Missile.

CASUALTY and DAMAGE Tables  
Heavy Guided Missile

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18     | 19     | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |        |        |                   |       |       |
|       |                   |         |                     |         |                    |         |                                |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |        |        | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod    | Emer   | Neg               | Mod   | Emer  |
| 2,200 | 7,200             | 7,200   | 2,225               | 2,225   |                    | 1,150   |                                |         | 6,700                             | 6,700   | 10,450                   | 10,450  | 37,000            | 31,400 | 27,300 | 24,600          | 16,600 | 13,400 | 10,525            | 7,275 | 4,600 |
| 2,100 | 7,200             | 7,200   | 2,250               | 2,250   | 0                  | 1,300   | 0                              | 0       | 6,600                             | 6,600   | 10,300                   | 10,300  | 37,000            | 31,400 | 27,300 | 24,600          | 16,600 | 13,400 | 10,325            | 7,200 | 4,500 |
| 2,000 | 7,225             | 7,225   | 2,275               | 2,275   | 500                | 1,450   | 200                            | 200     | 6,550                             | 6,550   | 10,150                   | 10,150  | 37,000            | 31,400 | 27,300 | 24,600          | 16,600 | 13,400 | 10,150            | 7,100 | 4,375 |
| 1,900 | 7,225             | 7,225   | 2,300               | 2,300   | 800                | 1,575   | 425                            | 425     | 6,450                             | 6,450   | 10,000                   | 10,000  | 37,000            | 31,400 | 27,300 | 24,600          | 16,600 | 13,500 | 9,975             | 7,025 | 4,250 |
| 1,800 | 7,225             | 7,225   | 2,300               | 2,300   | 1,000              | 1,700   | 600                            | 600     | 6,400                             | 6,400   | 9,850                    | 9,850   | 37,000            | 31,400 | 27,300 | 24,700          | 16,600 | 13,500 | 9,775             | 6,950 | 4,125 |
| 1,700 | 7,225             | 7,225   | 2,275               | 2,275   | 1,175              | 1,800   | 700                            | 700     | 6,300                             | 6,300   | 9,700                    | 9,700   | 37,000            | 31,500 | 27,400 | 24,700          | 16,600 | 13,500 | 9,625             | 6,875 | 4,000 |
| 1,600 | 7,225             | 7,225   | 2,250               | 2,250   | 1,300              | 1,875   | 800                            | 800     | 6,200                             | 6,200   | 9,550                    | 9,550   | 37,000            | 31,500 | 27,400 | 24,700          | 16,600 | 13,500 | 9,500             | 6,800 | 3,900 |
| 1,500 | 7,225             | 7,225   | 2,225               | 2,225   | 1,475              | 1,975   | 900                            | 975     | 6,150                             | 6,150   | 9,400                    | 9,400   | 37,000            | 31,500 | 27,400 | 24,700          | 16,600 | 13,500 | 9,375             | 6,725 | 3,825 |
| 1,400 | 7,225             | 7,225   | 2,225               | 2,225   | 1,700              | 2,050   | 975                            | 1,125   | 6,050                             | 6,050   | 9,250                    | 9,250   | 37,000            | 31,500 | 27,400 | 24,700          | 16,600 | 13,500 | 9,250             | 6,675 | 3,750 |
| 1,300 | 7,225             | 7,225   | 2,200               | 2,200   | 1,950              | 2,100   | 1,050                          | 1,225   | 5,950                             | 5,950   | 9,100                    | 9,100   | 37,000            | 31,500 | 27,400 | 24,700          | 16,700 | 13,500 | 9,125             | 6,600 | 3,675 |
| 1,200 | 7,225             | 7,225   | 2,175               | 2,175   | 2,200              | 2,200   | 1,100                          | 1,325   | 5,900                             | 5,900   | 8,950                    | 8,950   | 37,000            | 31,500 | 27,400 | 24,700          | 16,700 | 13,500 | 9,000             | 6,550 | 3,625 |
| 1,100 | 7,225             | 7,225   | 2,150               | 2,150   | 2,550              | 2,550   | 1,150                          | 1,425   | 5,800                             | 5,800   | 8,800                    | 8,800   | 36,300            | 30,900 | 27,000 | 24,200          | 16,300 | 13,300 | 8,900             | 6,475 | 3,600 |
| 1,050 | 7,225             | 7,225   | 2,125               | 2,125   | 2,700              | 2,700   | 1,175                          | 1,450   | 5,800                             | 5,800   | 8,700                    | 8,700   | 35,500            | 30,200 | 26,500 | 23,700          | 16,000 | 13,000 | 8,850             | 6,450 | 3,600 |
| 1,000 | 7,225             | 7,225   | 2,125               | 2,125   | 2,850              | 2,850   | 1,175                          | 1,500   | 5,750                             | 5,750   | 8,650                    | 8,650   | 34,800            | 29,600 | 26,000 | 23,200          | 15,700 | 12,700 | 8,775             | 6,425 | 3,575 |
| 950   | 7,200             | 7,200   | 2,125               | 2,125   | 2,950              | 2,950   | 1,200                          | 1,525   | 5,700                             | 5,700   | 8,550                    | 8,550   | 34,000            | 29,000 | 25,400 | 22,700          | 15,400 | 12,500 | 8,725             | 6,400 | 3,575 |
| 900   | 7,175             | 7,175   | 2,150               | 2,150   | 3,025              | 3,025   | 1,225                          | 1,550   | 5,650                             | 5,650   | 8,450                    | 8,450   | 33,300            | 28,300 | 24,900 | 22,200          | 15,000 | 12,200 | 8,675             | 6,375 | 3,575 |
| 850   | 7,175             | 7,175   | 2,150               | 2,150   | 3,075              | 3,075   | 1,225                          | 1,575   | 5,600                             | 5,600   | 8,400                    | 8,400   | 32,600            | 27,700 | 24,300 | 21,700          | 14,600 | 11,900 | 8,625             | 6,350 | 3,575 |
| 800   | 7,150             | 7,150   | 2,150               | 2,150   | 3,125              | 3,125   | 1,250                          | 1,600   | 5,600                             | 5,600   | 8,350                    | 8,350   | 31,800            | 27,000 | 23,800 | 21,200          | 14,300 | 11,600 | 8,575             | 6,325 | 3,575 |
| 750   | 7,100             | 7,100   | 2,175               | 2,175   | 3,150              | 3,150   | 1,275                          | 1,625   | 5,550                             | 5,550   | 8,250                    | 8,250   | 31,100            | 26,400 | 23,300 | 20,700          | 14,000 | 11,300 | 8,525             | 6,275 | 3,600 |
| 700   | 7,075             | 7,075   | 2,175               | 2,175   | 3,175              | 3,175   | 1,275                          | 1,650   | 5,500                             | 5,500   | 8,200                    | 8,200   | 30,400            | 25,700 | 22,800 | 20,200          | 13,700 | 11,100 | 8,475             | 6,250 | 3,600 |
| 650   | 7,025             | 7,025   | 2,200               | 2,200   | 3,200              | 3,200   | 1,300                          | 1,675   | 5,450                             | 5,450   | 8,150                    | 8,150   | 29,600            | 25,100 | 22,300 | 19,800          | 13,400 | 10,700 | 8,425             | 6,250 | 3,625 |
| 600   | 6,975             | 6,975   | 2,225               | 2,225   | 3,200              | 3,200   | 1,325                          | 1,700   | 5,450                             | 5,450   | 8,050                    | 8,050   | 28,900            | 24,400 | 21,700 | 19,300          | 13,000 | 10,500 | 8,375             | 6,225 | 3,625 |
| 500   | 6,875             | 6,875   | 2,275               | 2,275   | 3,225              | 3,225   | 1,375                          | 1,725   | 5,350                             | 5,350   | 7,950                    | 7,950   | 27,400            | 23,200 | 20,700 | 18,300          | 12,400 | 10,000 | 8,275             | 6,175 | 3,650 |
| 400   | 6,725             | 6,725   | 2,325               | 2,325   | 3,250              | 3,250   | 1,400                          | 1,750   | 5,300                             | 5,300   | 7,850                    | 7,850   | 25,900            | 21,900 | 19,600 | 17,300          | 11,700 | 9,400  | 8,200             | 6,125 | 3,675 |
| 300   | 6,525             | 6,525   | 2,400               | 2,400   | 3,175              | 3,175   | 1,425                          | 1,775   | 5,200                             | 5,200   | 7,750                    | 7,750   | 24,500            | 20,600 | 18,500 | 16,400          | 11,100 | 8,900  | 8,100             | 6,075 | 3,700 |
| 200   | 6,275             | 6,275   | 2,475               | 2,475   | 3,050              | 3,050   | 1,450                          | 1,775   | 5,150                             | 5,150   | 7,650                    | 7,650   | 22,200            | 19,300 | 17,400 | 15,400          | 10,400 | 8,400  | 8,025             | 6,025 | 3,750 |
| 100   | 5,975             | 5,975   | 2,550               | 2,550   | 2,825              | 2,825   | 1,450                          | 1,800   | 5,100                             | 5,100   | 7,550                    | 7,550   | 21,500            | 18,000 | 16,400 | 14,500          | 9,700  | 7,800  | 7,950             | 6,000 | 3,775 |
| 0     | 5,650             | 5,650   | 2,650               | 2,650   | 2,450              | 2,475   | 1,450                          | 1,800   | 5,050                             | 5,050   | 7,500                    | 7,500   | 20,100            | 16,700 | 15,300 | 13,500          | 9,200  | 7,300  | 7,875             | 5,975 | 3,800 |

HOB<sub>fs</sub> = 706mLow HOB<sub>min</sub> = 668mHigh HOB<sub>min</sub> = 1,512mHOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 8.6d

**CASUALTY and DAMAGE Tables**  
**Heavy Guided Missile**  
*All figures in meters*

**LIMA/2,000 KT**

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 2,200 | 2,875                         | 0                                | 600                          | 3,850                                        | 3,500                                  | 5,075                          | 18,475          | 9,350                        | 5,125                        | 19,500                     |                          |            | 0           |            |                 |            | 0           |            |
| 2,100 | 3,825                         | 125                              | 925                          | 3,975                                        | 3,525                                  | 5,050                          | 18,475          | 9,375                        | 5,175                        | 19,400                     |                          |            | 0-5         |            |                 |            | 0-450       |            |
| 2,000 | 4,075                         | 350                              | 1,200                        | 4,100                                        | 3,550                                  | 5,000                          | 18,500          | 9,400                        | 5,200                        | 19,325                     |                          |            | 0-5         |            |                 |            | 0-800       |            |
| 1,900 | 4,300                         | 575                              | 1,450                        | 4,200                                        | 3,575                                  | 4,975                          | 18,500          | 9,400                        | 5,250                        | 19,200                     |                          |            | 0-10        |            |                 |            | 0-1,000     |            |
| 1,800 | 4,425                         | 800                              | 1,675                        | 4,325                                        | 3,600                                  | 4,925                          | 18,525          | 9,425                        | 5,275                        | 19,100                     |                          | 0          | 0-20        |            |                 | 0          | 0-1,200     |            |
| 1,700 | 4,575                         | 1,025                            | 1,875                        | 4,425                                        | 3,625                                  | 4,900                          | 18,525          | 9,450                        | 5,325                        | 19,000                     |                          | 0-5        | 0-30        |            |                 | 0-400      | 0-1,350     |            |
| 1,600 | 4,700                         | 1,250                            | 2,025                        | 4,525                                        | 3,625                                  | 4,875                          | 18,525          | 9,475                        | 5,350                        | 18,900                     |                          | 0-5        | 5-55        |            |                 | 0-700      | 400-1,450   |            |
| 1,500 | 4,825                         | 1,475                            | 2,150                        | 4,650                                        | 3,650                                  | 4,850                          | 18,550          | 9,475                        | 5,375                        | 18,775                     |                          | 0-10       | 5-100       |            |                 | 0-900      | 700-1,550   |            |
| 1,400 | 4,950                         | 1,700                            | 2,275                        | 4,750                                        | 3,675                                  | 4,800                          | 18,550          | 9,500                        | 5,400                        | 18,675                     | 0                        | 0-20       | 10-190      |            | 0               | 0-1,050    | 900-1,650   |            |
| 1,300 | 5,050                         | 1,950                            | 2,400                        | 4,825                                        | 3,700                                  | 4,775                          | 18,550          | 9,500                        | 5,425                        | 18,550                     | 0-5                      | 0-30       | 15-340      |            | 0-50            | 0-1,200    | 1,050-1,750 |            |
| 1,200 | 5,150                         | 2,200                            | 2,500                        | 4,925                                        | 3,725                                  | 4,750                          | 18,550          | 9,525                        | 5,450                        | 18,425                     | 0-5                      | 5-50       | 25-600      |            | 0-750           | 50-1,300   | 1,150-1,800 |            |
| 1,100 | 5,250                         | 2,550                            | 2,600                        | 5,025                                        | 3,750                                  | 4,700                          | 18,025          | 9,325                        | 5,425                        | 18,300                     | 0-10                     | 5-100      | 50-1,160    |            | 0-900           | 500-1,400  | 1,250-1,850 |            |
| 1,050 | 5,300                         | 2,700                            | 2,650                        | 5,075                                        | 3,750                                  | 4,675                          | 17,625          | 9,125                        | 5,325                        | 18,250                     | 0-15                     | 10-130     | 65-1,560    |            | 0-950           | 600-1,400  | 1,300-1,900 |            |
| 1,000 | 5,350                         | 2,850                            | 2,700                        | 5,125                                        | 3,775                                  | 4,650                          | 17,225          | 8,925                        | 5,225                        | 18,175                     | 0-25                     | 10-190     | 95-2,280    |            | 0-1,000         | 700-1,450  | 1,350-1,950 |            |
| 950   | 5,400                         | 2,950                            | 2,750                        | 5,150                                        | 3,775                                  | 4,650                          | 16,825          | 8,750                        | 5,125                        | 18,125                     | 0-30                     | 15-260     | 125-3,120   |            | 0-1,050         | 750-1,500  | 1,400-1,950 |            |
| 900   | 5,425                         | 3,025                            | 2,800                        | 5,200                                        | 3,800                                  | 4,625                          | 16,400          | 8,550                        | 5,000                        | 18,050                     | 5-40                     | 15-360     | 175-4,320   |            | 50-1,100        | 800-1,550  | 1,400-2,000 |            |
| 850   | 5,450                         | 3,075                            | 2,825                        | 5,225                                        | 3,800                                  | 4,600                          | 16,000          | 8,350                        | 4,900                        | 18,000                     | 5-60                     | 25-520     | 250-6,240   | 0          | 350-1,150       | 850-1,550  | 1,450-2,000 | 0          |
| 800   | 5,475                         | 3,125                            | 2,875                        | 5,275                                        | 3,825                                  | 4,575                          | 15,600          | 8,150                        | 4,800                        | 17,925                     | 5-85                     | 30-740     | 360-8,880   | 0-5        | 450-1,600       | 900-1,600  | 1,450-2,000 | 0-50       |
| 750   | 5,475                         | 3,150                            | 2,900                        | 5,300                                        | 3,825                                  | 4,575                          | 15,200          | 7,950                        | 4,700                        | 17,875                     | 5-125                    | 45-1,100   | 530-13,200  | 0-5        | 550-1,200       | 950-1,600  | 1,500-2,050 | 0-300      |
| 700   | 5,475                         | 3,175                            | 2,950                        | 5,325                                        | 3,850                                  | 4,550                          | 14,800          | 7,750                        | 4,575                        | 17,800                     | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |
| 650   | 5,450                         | 3,200                            | 2,975                        | 5,350                                        | 3,850                                  | 4,525                          | 14,400          | 7,575                        | 4,475                        | 17,725                     |                          |            |             |            |                 |            |             |            |
| 600   | 5,450                         | 3,200                            | 3,000                        | 5,350                                        | 3,850                                  | 4,475                          | 14,000          | 7,375                        | 4,375                        | 17,675                     |                          |            |             |            |                 |            |             |            |
| 500   | 5,375                         | 3,225                            | 3,050                        | 5,325                                        | 3,850                                  | 4,450                          | 13,175          | 6,975                        | 4,175                        | 17,525                     |                          |            |             |            |                 |            |             |            |
| 400   | 5,300                         | 3,250                            | 3,025                        | 5,225                                        | 3,825                                  | 4,400                          | 12,375          | 6,600                        | 3,950                        | 17,400                     |                          |            |             |            |                 |            |             |            |
| 300   | 5,175                         | 3,175                            | 2,900                        | 5,075                                        | 3,750                                  | 4,300                          | 11,575          | 6,200                        | 3,750                        | 17,250                     |                          |            |             |            |                 |            |             |            |
| 200   | 4,825                         | 3,050                            | 2,700                        | 4,850                                        | 3,625                                  | 4,175                          | 10,750          | 5,800                        | 3,525                        | 17,100                     |                          |            |             |            |                 |            |             |            |
| 100   | 4,275                         | 2,825                            | 2,400                        | 4,525                                        | 3,425                                  | 4,075                          | 9,950           | 5,425                        | 3,325                        | 16,950                     |                          |            |             |            |                 |            |             |            |
| 0     | 3,675                         | 2,450                            | 2,000                        | 4,150                                        | 3,200                                  | 3,925                          | 9,150           | 5,025                        | 3,100                        | 16,800                     |                          |            |             |            |                 |            |             |            |

Figure 8.6d continued.

HGM 1

CASUALTY and DAMAGE Tables  
Heavy Guided Missile

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                 | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18     | 19     | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|------------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs. |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |        |        |                   |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                             | Delayed | Prompt                   | Delayed | Unwarned, exposed |        |        | Warned, exposed |        |        | Warned, protected |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                    |         |                          |         | Neg               | Mod    | Emer   | Neg             | Mod    | Emer   | Neg               | Mod   | Emer  |
| 2,500 | 10,425            | 10,425  | 3,125               | 3,125   | 1,025              | 1,475   | 725                             | 725     | 8,700                              | 8,700   | 13,600                   | 13,600  | 54,500            | 45,600 | 38,400 | 35,500          | 25,000 | 19,900 | 13,350            | 9,475 | 5,675 |
| 2,400 | 10,425            | 10,425  | 3,100               | 3,100   | 1,250              | 1,625   | 850                             | 850     | 8,600                              | 8,600   | 13,450                   | 13,450  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 19,900 | 13,200            | 9,400 | 5,550 |
| 2,300 | 10,425            | 10,425  | 3,075               | 3,075   | 1,500              | 1,750   | 950                             | 950     | 8,500                              | 8,500   | 13,300                   | 13,300  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 13,075            | 9,325 | 5,425 |
| 2,200 | 10,425            | 10,425  | 3,075               | 3,075   | 1,750              | 1,875   | 1,050                           | 1,050   | 8,400                              | 8,400   | 13,200                   | 13,200  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 12,925            | 9,250 | 5,325 |
| 2,100 | 10,425            | 10,425  | 3,050               | 3,050   | 1,975              | 2,000   | 1,150                           | 1,150   | 8,350                              | 8,350   | 13,050                   | 13,050  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 12,800            | 9,175 | 5,225 |
| 2,000 | 10,425            | 10,425  | 3,025               | 3,025   | 2,225              | 2,225   | 1,250                           | 1,250   | 8,250                              | 8,250   | 12,900                   | 12,900  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 12,675            | 9,125 | 5,150 |
| 1,900 | 10,425            | 10,425  | 3,000               | 3,000   | 2,475              | 2,475   | 1,325                           | 1,325   | 8,200                              | 8,200   | 12,750                   | 12,750  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 12,550            | 9,050 | 5,075 |
| 1,800 | 10,425            | 10,425  | 2,975               | 2,975   | 2,725              | 2,725   | 1,400                           | 1,400   | 8,100                              | 8,100   | 12,650                   | 12,650  | 54,500            | 45,700 | 38,400 | 35,600          | 25,000 | 20,000 | 12,425            | 8,975 | 5,025 |
| 1,700 | 10,425            | 10,425  | 2,950               | 2,950   | 2,950              | 2,950   | 1,450                           | 1,450   | 8,050                              | 8,050   | 12,500                   | 12,500  | 54,500            | 45,700 | 38,400 | 35,600          | 25,000 | 20,000 | 12,300            | 8,925 | 4,950 |
| 1,600 | 10,425            | 10,425  | 2,925               | 2,925   | 3,275              | 3,275   | 1,500                           | 1,500   | 8,000                              | 8,000   | 12,400                   | 12,400  | 53,700            | 45,300 | 37,900 | 35,100          | 24,600 | 19,800 | 12,175            | 8,850 | 4,925 |
| 1,500 | 10,425            | 10,425  | 2,925               | 2,925   | 3,650              | 3,650   | 1,550                           | 1,550   | 7,900                              | 7,900   | 12,300                   | 12,300  | 52,200            | 44,000 | 36,900 | 34,000          | 23,900 | 19,200 | 12,075            | 8,800 | 4,875 |
| 1,400 | 10,425            | 10,425  | 2,875               | 2,875   | 4,000              | 4,000   | 1,600                           | 1,600   | 7,850                              | 7,850   | 12,200                   | 12,200  | 50,600            | 42,700 | 35,900 | 33,000          | 23,200 | 18,600 | 11,950            | 8,750 | 4,875 |
| 1,300 | 10,400            | 10,400  | 2,900               | 2,900   | 4,250              | 4,250   | 1,625                           | 1,675   | 7,800                              | 7,800   | 12,050                   | 12,050  | 49,000            | 41,400 | 34,800 | 32,100          | 22,500 | 18,000 | 11,850            | 8,675 | 4,850 |
| 1,200 | 10,375            | 10,375  | 2,900               | 2,900   | 4,400              | 4,400   | 1,650                           | 1,750   | 7,750                              | 7,750   | 11,950                   | 11,950  | 47,500            | 40,000 | 33,800 | 31,100          | 21,800 | 17,500 | 11,750            | 8,625 | 4,850 |
| 1,100 | 10,300            | 10,300  | 2,925               | 2,925   | 4,500              | 4,500   | 1,700                           | 1,825   | 7,700                              | 7,700   | 11,850                   | 11,850  | 46,000            | 38,900 | 32,800 | 30,100          | 21,100 | 17,000 | 11,650            | 8,575 | 4,850 |
| 1,050 | 10,275            | 10,275  | 2,950               | 2,950   | 4,525              | 4,525   | 1,700                           | 1,850   | 7,650                              | 7,650   | 11,800                   | 11,800  | 45,200            | 38,200 | 32,300 | 29,600          | 20,700 | 16,700 | 11,600            | 8,550 | 4,875 |
| 1,000 | 10,250            | 10,250  | 2,950               | 2,950   | 4,550              | 4,550   | 1,725                           | 1,875   | 7,600                              | 7,600   | 11,750                   | 11,750  | 44,400            | 37,600 | 31,800 | 29,100          | 20,400 | 16,400 | 11,550            | 8,525 | 4,875 |
| 950   | 10,200            | 10,200  | 2,975               | 2,975   | 4,575              | 4,575   | 1,725                           | 1,900   | 7,600                              | 7,600   | 11,700                   | 11,700  | 53,600            | 36,800 | 31,200 | 28,600          | 20,000 | 16,100 | 11,500            | 8,500 | 4,900 |
| 900   | 10,150            | 10,150  | 2,975               | 2,975   | 4,600              | 4,600   | 1,750                           | 1,925   | 7,550                              | 7,550   | 11,650                   | 11,650  | 42,900            | 36,200 | 30,700 | 28,100          | 19,700 | 15,800 | 11,450            | 8,475 | 4,900 |
| 850   | 10,100            | 10,100  | 3,000               | 3,000   | 4,625              | 4,625   | 1,750                           | 1,950   | 7,500                              | 7,500   | 11,600                   | 11,600  | 42,100            | 35,600 | 30,200 | 27,600          | 19,300 | 15,500 | 11,400            | 8,450 | 4,925 |
| 800   | 10,050            | 10,050  | 3,025               | 3,025   | 4,625              | 4,625   | 1,775                           | 1,975   | 7,500                              | 7,500   | 11,550                   | 11,550  | 41,400            | 35,000 | 29,700 | 27,100          | 19,000 | 15,200 | 11,350            | 8,425 | 4,925 |
| 750   | 10,000            | 10,000  | 3,050               | 3,050   | 4,650              | 4,650   | 1,775                           | 2,000   | 7,450                              | 7,450   | 11,500                   | 11,500  | 40,600            | 34,400 | 29,200 | 26,600          | 18,600 | 14,700 | 11,300            | 8,400 | 4,950 |
| 700   | 9,950             | 9,950   | 3,075               | 3,075   | 4,650              | 4,650   | 1,800                           | 2,000   | 7,450                              | 7,450   | 11,450                   | 11,450  | 39,800            | 33,700 | 28,700 | 26,100          | 18,300 | 14,400 | 11,250            | 8,375 | 4,950 |
| 600   | 9,800             | 9,800   | 3,125               | 3,125   | 4,675              | 4,675   | 1,825                           | 2,050   | 7,350                              | 7,350   | 11,350                   | 11,350  | 38,200            | 32,400 | 27,700 | 25,100          | 17,600 | 14,100 | 11,175            | 8,325 | 4,975 |
| 500   | 9,625             | 9,625   | 3,200               | 3,200   | 4,675              | 4,675   | 1,825                           | 2,075   | 7,300                              | 7,300   | 11,250                   | 11,250  | 36,700            | 31,100 | 26,600 | 24,100          | 16,900 | 13,500 | 11,075            | 8,300 | 5,000 |
| 400   | 9,400             | 9,400   | 3,250               | 3,250   | 4,575              | 4,575   | 1,850                           | 2,100   | 7,250                              | 7,250   | 11,150                   | 11,150  | 35,200            | 29,800 | 25,600 | 23,100          | 16,200 | 13,000 | 11,000            | 8,250 | 5,050 |
| 300   | 9,125             | 9,125   | 3,325               | 3,325   | 4,450              | 4,450   | 1,875                           | 2,100   | 7,200                              | 7,200   | 11,050                   | 11,050  | 33,600            | 28,500 | 24,600 | 22,100          | 15,500 | 12,400 | 10,925            | 8,225 | 5,075 |
| 200   | 8,850             | 8,850   | 3,425               | 3,425   | 4,250              | 4,250   | 1,875                           | 2,100   | 7,150                              | 7,150   | 10,950                   | 10,950  | 32,100            | 27,200 | 23,600 | 21,100          | 14,800 | 11,900 | 10,850            | 8,175 | 5,100 |
| 100   | 8,500             | 8,500   | 3,500               | 3,500   | 3,925              | 3,925   | 1,900                           | 2,125   | 7,100                              | 7,100   | 10,850                   | 10,850  | 30,600            | 26,000 | 22,500 | 20,200          | 14,200 | 11,300 | 10,775            | 8,150 | 5,125 |
| 0     | 8,125             | 8,125   | 3,600               | 3,600   | 3,525              | 3,525   | 1,900                           | 2,125   | 7,050                              | 7,050   | 10,750                   | 10,750  | 29,200            | 24,700 | 21,500 | 19,200          | 13,600 | 10,800 | 10,700            | 8,100 | 5,150 |

HOBfs = 958m  
 Low HOB<sub>min</sub> = 905m  
 High HOB<sub>min</sub> = 2,052m  
 HOB<sub>99</sub> = HOBfs + 3.5 PE<sub>h</sub> m  
 HOB<sub>98</sub> = HOBfs + 3.0 PE<sub>h</sub> m  
 HOB<sub>90</sub> = HOBfs + 1.9 PE<sub>h</sub> m

Figure 8.6e.



# CASUALTY and DAMAGE Tables Heavy Guided Missile

MIKE/5,000 KT

All figures in meters

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mad<br>dam<br>wheeled<br>vehs | Mad<br>dam<br>tks<br>and<br>Arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (Rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 2,500 | 6,325                         | 1,025                            | 2,300                        | 6,150                                        | 5,075                                  | 7,375                          | 26,375          | 13,275                       | 7,850                        | 26,000                     |                          |            |             |            |                 |            |             |            |
| 2,400 | 6,450                         | 1,250                            | 2,500                        | 6,275                                        | 5,075                                  | 7,350                          | 26,400          | 13,275                       | 7,875                        | 25,875                     |                          |            | 0           |            |                 |            | 0           |            |
| 2,300 | 6,600                         | 1,500                            | 2,700                        | 6,400                                        | 5,100                                  | 7,300                          | 26,400          | 13,300                       | 7,900                        | 25,775                     |                          |            | 0-5         |            |                 |            | 0-50        |            |
| 2,200 | 6,750                         | 1,750                            | 2,875                        | 6,500                                        | 5,125                                  | 7,250                          | 26,400          | 13,325                       | 7,925                        | 25,675                     |                          |            | 0-5         |            |                 |            | 0-700       |            |
| 2,100 | 6,875                         | 1,975                            | 3,025                        | 6,625                                        | 5,150                                  | 7,200                          | 26,425          | 13,325                       | 7,950                        | 25,550                     |                          |            | 0-10        |            |                 |            | 0-950       |            |
| 2,000 | 7,000                         | 2,225                            | 3,150                        | 6,725                                        | 5,175                                  | 7,150                          | 26,425          | 13,350                       | 7,975                        | 25,450                     |                          | 0          | 0-15        |            |                 | 0          | 0-1,150     |            |
| 1,900 | 7,125                         | 2,475                            | 3,275                        | 6,825                                        | 5,175                                  | 7,100                          | 26,425          | 13,375                       | 8,000                        | 25,325                     |                          | 0-5        | 0-25        |            |                 | 0-50       | 0-1,300     |            |
| 1,800 | 7,250                         | 2,725                            | 3,400                        | 6,950                                        | 5,200                                  | 7,050                          | 26,450          | 13,375                       | 8,025                        | 25,225                     |                          | 0-5        | 0-40        |            |                 | 0-600      | 0-1,450     |            |
| 1,700 | 7,375                         | 2,950                            | 3,525                        | 7,050                                        | 5,200                                  | 7,000                          | 26,450          | 13,400                       | 8,050                        | 25,100                     |                          | 0-10       | 5-75        |            |                 | 0-850      | 400-1,550   |            |
| 1,600 | 7,475                         | 3,275                            | 3,650                        | 7,150                                        | 5,225                                  | 6,950                          | 25,775          | 13,150                       | 8,025                        | 24,975                     | 0                        | 0-15       | 10-130      |            | 0               | 0-1,050    | 700-1,700   |            |
| 1,500 | 7,575                         | 3,650                            | 3,750                        | 7,250                                        | 5,250                                  | 6,900                          | 24,950          | 12,775                       | 7,800                        | 24,850                     | 0-5                      | 0-25       | 10-250      |            | 0-400           | 0-1,200    | 900-1,750   |            |
| 1,400 | 7,675                         | 4,000                            | 3,850                        | 7,350                                        | 5,250                                  | 6,850                          | 24,150          | 12,375                       | 7,575                        | 24,725                     | 0-5                      | 0-40       | 20-460      |            | 0-700           | 0-1,300    | 1,050-1,850 |            |
| 1,300 | 7,775                         | 4,250                            | 3,950                        | 7,425                                        | 5,275                                  | 6,800                          | 23,350          | 12,000                       | 7,350                        | 24,600                     | 0-10                     | 5-70       | 35-840      |            | 0-850           | 400-1,400  | 1,200-1,900 |            |
| 1,200 | 7,850                         | 4,400                            | 4,050                        | 7,525                                        | 5,275                                  | 6,750                          | 22,525          | 11,600                       | 7,125                        | 24,475                     | 0-15                     | 5-125      | 60-1,500    |            | 0-1,000         | 650-1,500  | 1,300-2,000 |            |
| 1,100 | 7,875                         | 4,500                            | 4,125                        | 7,575                                        | 5,300                                  | 6,700                          | 21,725          | 11,225                       | 6,900                        | 24,350                     | 0-30                     | 10-240     | 120-2,880   |            | 0-1,100         | 800-1,600  | 1,400-2,050 |            |
| 1,050 | 7,900                         | 4,525                            | 4,175                        | 7,625                                        | 5,300                                  | 6,675                          | 21,300          | 11,025                       | 6,800                        | 24,300                     | 0-40                     | 15-325     | 160-3,900   |            | 0-1,150         | 850-1,600  | 1,400-2,050 |            |
| 1,000 | 7,900                         | 4,550                            | 4,200                        | 7,650                                        | 5,325                                  | 6,650                          | 20,900          | 10,825                       | 6,675                        | 24,225                     | 5-55                     | 20-475     | 230-5,700   | 0          | 50-1,200        | 950-1,650  | 1,450-2,100 | 0          |
| 950   | 7,900                         | 4,575                            | 4,250                        | 7,675                                        | 5,325                                  | 6,625                          | 20,500          | 10,625                       | 6,575                        | 24,150                     | FALLOUT COVERS           |            |             |            |                 |            |             |            |
| 900   | 7,875                         | 4,600                            | 4,275                        | 7,700                                        | 5,350                                  | 6,575                          | 20,100          | 10,450                       | 6,450                        | 24,100                     |                          |            |             |            |                 |            |             |            |
| 850   | 7,875                         | 4,625                            | 4,325                        | 7,725                                        | 5,350                                  | 6,550                          | 19,700          | 10,250                       | 6,350                        | 24,025                     |                          |            |             |            |                 |            |             |            |
| 800   | 7,850                         | 4,625                            | 4,350                        | 7,725                                        | 5,350                                  | 6,525                          | 19,275          | 10,050                       | 6,225                        | 23,950                     |                          |            |             |            |                 |            |             |            |
| 750   | 7,800                         | 4,650                            | 4,375                        | 7,700                                        | 5,350                                  | 6,500                          | 18,875          | 9,850                        | 6,125                        | 23,900                     |                          |            |             |            |                 |            |             |            |
| 700   | 7,775                         | 4,650                            | 4,400                        | 7,700                                        | 5,375                                  | 6,500                          | 18,475          | 9,675                        | 6,000                        | 23,825                     |                          |            |             |            |                 |            |             |            |
| 600   | 7,700                         | 4,675                            | 4,400                        | 7,625                                        | 5,375                                  | 6,450                          | 17,675          | 9,275                        | 5,775                        | 23,675                     |                          |            |             |            |                 |            |             |            |
| 500   | 7,600                         | 4,675                            | 4,325                        | 7,500                                        | 5,350                                  | 6,400                          | 16,850          | 8,900                        | 5,500                        | 23,550                     |                          |            |             |            |                 |            |             |            |
| 400   | 7,425                         | 4,575                            | 4,175                        | 7,300                                        | 5,250                                  | 6,325                          | 16,050          | 8,500                        | 5,325                        | 23,400                     |                          |            |             |            |                 |            |             |            |
| 300   | 7,100                         | 4,450                            | 3,950                        | 7,050                                        | 5,125                                  | 6,250                          | 15,225          | 8,125                        | 5,100                        | 23,250                     |                          |            |             |            |                 |            |             |            |
| 200   | 6,575                         | 4,250                            | 3,675                        | 6,775                                        | 4,975                                  | 6,150                          | 14,425          | 7,725                        | 4,875                        | 23,100                     |                          |            |             |            |                 |            |             |            |
| 100   | 5,925                         | 3,925                            | 3,300                        | 6,400                                        | 4,700                                  | 6,075                          | 13,600          | 7,350                        | 4,650                        | 22,975                     |                          |            |             |            |                 |            |             |            |
| 0     | 5,300                         | 3,525                            | 2,875                        | 6,000                                        | 3,975                                  | 5,975                          | 12,800          | 6,950                        | 4,425                        | 22,825                     |                          |            |             |            |                 |            |             |            |

Figure 8.6e continued.

HGM 1

<sup>1</sup>Heavy Guided Missile.

# **CONTINGENT EFFECTS Tables** **Heavy Guided Missile**

**INDUCED RADIATION IN SOILS (See note 1.)**  
Fallout activity is not significant.  
Impact burst not tabulated, fallout governs.

| Yield<br>KT | HOB  | Estimated radii in meters at 2 rad/hr contour<br>at induced radiation, 1 hour after burst. |                                    |                                         |                                                 | Estimated induced radiation intensity, one<br>hour after burst, at GZ. In rad/hr. |              |               |              |
|-------------|------|--------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------|--------------|---------------|--------------|
|             |      | Soil type I<br>(Liberia<br>Africa)                                                         | Soil type II<br>(Nevada<br>desert) | Soil type III<br>(lava clay,<br>Hawaii) | Soil type IV<br>(beach sand,<br>Pensacola, Fla) | Soil type I                                                                       | Soil type II | Soil type III | Soil type IV |
| INDIA/200   | Low  | 400-900                                                                                    | 750-1,300                          | 1,200-1,750                             | 0-350                                           | 10-210                                                                            | 80-1,900     | 920-22,800    | 0-5          |
|             | High | 0-700                                                                                      | 400-1,150                          | 1,050-1,650                             | 0                                               | 0-15                                                                              | 5-110        | 55-1,320      | 0            |
| JULIETT/500 | Low  | 400-1,000                                                                                  | 800-1,400                          | 1,300-1,900                             | 0-400                                           | 5-110                                                                             | 40-1,000     | 480-12,000    | 0-5          |
|             | High | 0-650                                                                                      | 300-1,200                          | 1,050-1,750                             | 0                                               | 0-10                                                                              | 5-65         | 35-780        | 0            |
| KILO/1,000  | Low  | 400-1,100                                                                                  | 900-1,500                          | 1,350-1,950                             | 0-300                                           | 5-95                                                                              | 35-825       | 400-9,900     | 0-5          |
|             | High | 0-500                                                                                      | 0-1,150                            | 900-1,700                               | 0                                               | 0-5                                                                               | 0-25         | 15-300        | 0            |
| LIMA/2,000  | Low  | 350-1,150                                                                                  | 850-1,550                          | 1,450-2,000                             | 0                                               | 5-60                                                                              | 25-520       | 250-6,240     | 0            |
|             | High | 0                                                                                          | 0-1,050                            | 900-1,650                               | 0                                               | 0                                                                                 | 0-20         | 10-190        | 0            |
| MIKE/5,000  | Low  | 0-1,100                                                                                    | 800-1,600                          | 1,400-2,050                             | 0                                               | 0-30                                                                              | 10-240       | 120-2,880     | 0            |
|             | High | 0                                                                                          | 0-50                               | 0-1,300                                 | 0                                               | 0                                                                                 | 0-5          | 0-25          | 0            |

NOTE: For description of chemical composition and effects of variations in chemical composition in soil types, see FM 101-31-1, app III, annex F.

Figure 8.7a.

## **TREE BLOWDOWN (See note.)** **All distances in meters**

| Yield<br>KT | OBSTACLES TO MOVEMENT                |            |             |            |                             |                    |                     |                   | CASUALTIES TO<br>EXPOSED PERSONNEL |                    |                     |
|-------------|--------------------------------------|------------|-------------|------------|-----------------------------|--------------------|---------------------|-------------------|------------------------------------|--------------------|---------------------|
|             | Foot and wheeled vehicle<br>movement |            |             |            | Tracked vehicle<br>movement |                    |                     |                   |                                    |                    |                     |
|             | Type<br>I                            | Type<br>II | Type<br>III | Type<br>IV | Type<br>I                   | Types<br>II, IV(a) | Types<br>III, IV(a) | Types<br>I, IV(a) | Type<br>I                          | Types<br>II, IV(a) | Types<br>III, IV(a) |
| INDIA/200   | 2,450                                | 3,200      | 3,800       | 6,200      | 2,450                       | 3,200              | 3,800               | 2,000             | 2,400                              | 2,700              |                     |
| JULIETT/500 | 3,750                                | 4,800      | 6,000       | 9,400      | 3,750                       | 4,800              | 6,000               | 3,150             | 3,600                              | 4,200              |                     |
| KILO/1,000  | 5,000                                | 6,200      | 7,700       | 12,000     | 5,000                       | 6,200              | 7,700               | 4,050             | 4,600                              | 5,200              |                     |
| LIMA/2,000  | 5,800                                | 7,400      | 9,600       | 14,500     | 5,800                       | 7,400              | 9,600               | 4,600             | 5,200                              | 6,500              |                     |
| MIKE/5,000  | 8,600                                | 12,000     | 14,500      | 22,000     | 8,600                       | 12,000             | 14,500              | 7,000             | 8,000                              | 9,000              |                     |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 8.7b.

## **LIGHT AIRCRAFT IN FLIGHT (See note 1.)**

| Yield<br>KT | AIRCRAFT SAFETY RADII—meters<br>(See note 2.) |                       |                           |
|-------------|-----------------------------------------------|-----------------------|---------------------------|
|             | Light fixed<br>wing                           | Recon and<br>obsn hel | Transport<br>and util hel |
| INDIA/200   | 27,000                                        | 26,000                | 23,000                    |
| JULIETT/500 | 35,000                                        | 34,000                | 31,000                    |
| KILO/1,000  | 43,000                                        | 42,000                | 40,000                    |
| LIMA/2,000  | 51,000                                        | 50,000                | 47,000                    |
| MIKE/5,000  | 62,000                                        | 61,000                | 58,000                    |

- NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.  
2. A buffer distance has been added to these radii of safety.

Figure 8.7c.

**CONTINGENT EFFECTS Tables (continued)**  
**Heavy Guided Missile**

**FIRE AREAS (See note.)**

| Yield<br>KT | HOB    | Expected radii for ignition of wildland fuels during fire season—meters |          |           |          |                                             |          |           |          |
|-------------|--------|-------------------------------------------------------------------------|----------|-----------|----------|---------------------------------------------|----------|-----------|----------|
|             |        | Dry climate (25 percent relative humidity)                              |          |           |          | Damp climate (75 percent relative humidity) |          |           |          |
|             |        | Class I                                                                 | Class II | Class III | Class IV | Class I                                     | Class II | Class III | Class IV |
| INDIA/200   | Air    | 8,300                                                                   | 7,700    | 7,000     | 5,800    | 7,700                                       | 7,700    | 6,400     | 4,800    |
|             | Impact | 4,500                                                                   | 4,200    | 3,800     | 3,200    | 4,200                                       | 4,200    | 3,500     | 2,700    |
| JULIETT/500 | Air    | 11,900                                                                  | 11,000   | 9,900     | 8,200    | 11,000                                      | 11,000   | 9,200     | 6,900    |
|             | Impact | 6,200                                                                   | 5,700    | 5,300     | 4,400    | 5,700                                       | 5,700    | 4,900     | 3,800    |
| KILO/1,000  | Air    | 15,600                                                                  | 14,200   | 12,900    | 10,700   | 14,200                                      | 14,200   | 11,900    | 8,900    |
|             | Impact | 7,800                                                                   | 7,200    | 6,600     | 5,600    | 7,200                                       | 7,200    | 6,200     | 4,800    |
| LIMA/2,000  | Air    | 20,600                                                                  | 18,800   | 17,000    | 14,000   | 18,800                                      | 18,800   | 15,600    | 11,800   |
|             | Impact | 10,100                                                                  | 9,400    | 8,600     | 7,100    | 9,400                                       | 9,400    | 7,900     | 6,100    |
| MIKE/5,000  | Air    | 29,300                                                                  | 26,700   | 23,300    | 20,200   | 26,700                                      | 26,700   | 22,900    | 16,800   |
|             | Impact | 14,000                                                                  | 12,900   | 11,800    | 9,900    | 12,900                                      | 12,900   | 10,900    | 8,500    |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 8.7d.

**CRATER DIMENSIONS (See note.)**

| Yield<br>KT | Approx crater dimensions for various soil types—meters |       |                                         |       |                                                  |       |                                                   |       |
|-------------|--------------------------------------------------------|-------|-----------------------------------------|-------|--------------------------------------------------|-------|---------------------------------------------------|-------|
|             | Hard rock<br>(granite and<br>sandstone)                |       | Soft rock<br>(dry soil or<br>soft rock) |       | Saturated soil<br>(water slowly<br>fills crater) |       | Saturated soil<br>(water rapidly<br>fills crater) |       |
|             | Radius                                                 | Depth | Radius                                  | Depth | Radius                                           | Depth | Radius                                            | Depth |
| INDIA/200   | 92                                                     | 20    | 115                                     | 24    | 172                                              | 36    | 229                                               | 17    |
| JULIETT/500 | 114                                                    | 25    | 155                                     | 31    | 233                                              | 46    | 310                                               | 22    |
| KILO/1,000  | 156                                                    | 29    | 196                                     | 36    | 293                                              | 54    | 391                                               | 26    |
| LIMA/2,000  | 197                                                    | 35    | 246                                     | 43    | 369                                              | 65    | 492                                               | 30    |
| MIKE/5,000  | 267                                                    | 43    | 334                                     | 54    | 501                                              | 81    | 668                                               | 38    |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 8.7e.

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## CHAPTER 9 FIGHTER AIRCRAFT

### 9.1 GENERAL

a. *Orientation.* This chapter contains employment data for the nuclear bombs delivered by fighter aircraft.

b. *Weapon characteristics.*

(1) *Yield.* The bombs carried by fighter aircraft have yields of Delta/5 KT, Echo/10 KT, Foxtrot/20 KT, Golf/50 KT, Hotel/100 KT, India/200 KT, Juliett/500 KT, and Kilo/1 MT.

(2) *Fuzing.*

(a) The fuzing for these bombs provides airburst and impact fuzing options. The airburst option is radar-fuzed and can be set for either high or low airburst; these are the only heights of burst available. Contact backup is provided in all cases where the airburst option is selected.

(b) The fuzes are preset at the following heights of burst:

| Warhead section | HOB option | HOB (meters) | PE <sub>h</sub> (meters) |
|-----------------|------------|--------------|--------------------------|
| Delta/5 KT      | low        | 227          | 50                       |
|                 | high       | 355          |                          |
| Echo/10 KT      | low        | 240          | 50                       |
|                 | high       | 402          |                          |
| Foxtrot/20 KT   | low        | 257          | 50                       |
|                 | high       | 461          |                          |
| Golf/50 KT      | low        | 286          | 50                       |
|                 | high       | 562          |                          |
| Hotel/100 KT    | low        | 315          | 50                       |
|                 | high       | 663          |                          |
| India/200 KT    | low        | 502          | 50                       |
|                 | high       | 790          |                          |
| Juliett/500 KT  | low        | 620          | 50                       |
|                 | high       | 1,009        |                          |
| Kilo/1 MT       | low        | 735          | 50                       |
|                 | high       | 1,225        |                          |

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The radius of action for fighter aircraft varies depending on the type fighter used. For training purposes only, a maximum radius of action of 800 kilometers is assumed. In an actual situation, the delivery unit concerned is consulted to obtain this information.

(2) *Tactical system accuracy.* Horizontal dispersion is dependent on the proficiency of the aircraft pilot and crew, and the technique of delivery. The CEP used in this chapter for fighter delivery is an average value for well-trained crews. A CEP of 250 meters has been used in the computation of the weapon selection tables. The vertical probable error is 50 meters.

(3) *Response time.* The times shown below can be used as a basis for general tactical planning. For detailed tactical planning, the response times should be the actual times obtained from the delivery unit concerned. The times listed below are average times for normal operations after alert. Such factors as distance and routes to the bomb storage area, type of transportation, type of ground handling equipment, and enemy action influence bomb preparation and loading.

| Situation       | Time (minutes) | Remarks                                                                                                                                                     |
|-----------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I <sup>1</sup>  | 60             | (a) In both situations, flight time must be added to the times shown.<br>(b) Time may vary in situation I as distance from storage area to aircraft varies. |
| II <sup>2</sup> | 10             |                                                                                                                                                             |

<sup>1</sup>Situation I (ready)—bomb is partially assembled and tested to allow shortest assembly time. The bomb is located in a storage area.

<sup>2</sup>Situation II (strike)—bomb is assembled and loaded on the aircraft. The aircraft and crew are on ground alert.

(4) *Special considerations.* The target analyst coordinates closely with the liaison officer representing the delivery unit concerned. The analyst needs to know the CEP involved, because CEP varies depending on the crew assigned and the delivery technique used to attack the target. (See para 9.1c(2), above, for assumption made for the weapon on selection tables that follow.) When an airburst fuzing option is selected, the fire mission states the desired radar HOB setting as high or low. When an impact fuzing option is selected, the fire mission specifies HOB impact. When employing these weapons, a fallout prediction is always made.

FTR  
ACFT 1

# **EXPPOSED Personnel Targets Fighter Aircraft**

| Yield<br><br>KT                           | HOB option<br>(HOB-meters)<br><br>(See note) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |        |        |                        |       |       |       |       |       |        |        | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>0</sub><br>(meters) |
|-------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|--------|--------|------------------------|-------|-------|-------|-------|-------|--------|--------|---------------------------------------------------|---------|--------------------------------------------------|
|                                           |                                              |                                                                            | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |        |        | DELAYED CASUALTIES     |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600  | 1,800  | 1,000                  | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200  | 2,400  | Prompt                                            | Delayed |                                                  |
| 5                                         | High ( 355)                                  | 3,700                                                                      | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2  | .1/.2  | .6/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2  | .1/.2  | 650                                               | 950     | (all<br>yields)                                  |
|                                           | Low ( 227)                                   | 3,700                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2  | .1/.2  | .6/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2  | .1/.2  | 725                                               | 1,000   |                                                  |
|                                           | Impact                                       | *2,600                                                                     | .8/.9                                                                                                                                                                  | .7/.9 | .6/.7 | .5/.6 | .3/.4 | .3/.3 | .2/.3  | .1/.2  | .7/.8                  | .5/.7 | .4/.5 | .4/.4 | .3/.3 | .2/.3 | .2/.2  | .1/.2  | 800                                               | 1,050   |                                                  |
| 10                                        |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800  | 2,000  | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200  |        |                                                   |         |                                                  |
|                                           | High ( 402)                                  | 4,600                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2  | .1/.2  | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1  |        | 825                                               | 1,050   |                                                  |
|                                           | Low ( 24q)                                   | 4,600                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2  | .1/.2  | .8/.9                  | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1  |        | 875                                               | 1,125   |                                                  |
|                                           | Impact                                       | *3,100                                                                     | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3  | .1/.2  | .8/.9                  | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1  |        | 900                                               | 1,175   |                                                  |
| 20                                        |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 1,000                                                                                                                                                                  | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200  | 2,400  | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200  | 3,600  |                                                   |         |                                                  |
|                                           | High ( 461)                                  | 6,400                                                                      | .7/.9                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3  | .1/.2  | .8/.9                  | .6/.8 | .4/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1  |        | 1,125                                             | 1,125   |                                                  |
|                                           | Low ( 257)                                   | 6,400                                                                      | .7/.9                                                                                                                                                                  | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3  | .2/.2  | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2  | .1/.1  | 1,125                                             | 1,200   |                                                  |
| 50                                        |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 1,200                                                                                                                                                                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600  | 4,000  | 1,200                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600  | 4,000  |                                                   |         |                                                  |
|                                           | High ( 562)                                  | 9,200                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2  | .1/.2  | .9/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2  | .1/.2  | 1,650                                             | 1,650   |                                                  |
|                                           | Low ( 286)                                   | 9,200                                                                      | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2  | .1/.2  | .9/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2  | .1/.2  | 1,600                                             | 1,600   |                                                  |
| 100                                       |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 2,000                                                                                                                                                                  | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400  | 4,800  | 2,000                  | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400  | 4,800  |                                                   |         |                                                  |
|                                           | High ( 663)                                  | 11,900                                                                     | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3  | .1/.2  | .8/.9                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3  | .1/.2  | 2,175                                             | 2,175   |                                                  |
|                                           | Low ( 315)                                   | 11,900                                                                     | .8/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2  | .1/.2  | .8/.9                  | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2  | .1/.2  | 2,100                                             | 2,100   |                                                  |
| 200                                       |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 3,000                                                                                                                                                                  | 3,800 | 4,600 | 5,400 | 6,200 | 7,000 | 7,800  |        | 3,000                  | 3,800 | 4,600 | 5,400 | 6,200 | 7,000 | 7,800  |        |                                                   |         |                                                  |
|                                           | High ( 790)                                  | 15,800                                                                     | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1  |        | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1  |        | 2,875                                             | 2,875   |                                                  |
|                                           | Low ( 502)                                   | 15,800                                                                     | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1  |        | .7/.8                  | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1  |        | 2,850                                             | 2,850   |                                                  |
| 500                                       |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 3,400                                                                                                                                                                  | 4,200 | 5,000 | 5,800 | 6,600 | 7,400 | 8,200  | 9,000  | 3,400                  | 4,200 | 5,000 | 5,800 | 6,600 | 7,400 | 8,200  | 9,000  |                                                   |         |                                                  |
|                                           | High (1,009)                                 | 22,300                                                                     | .9/.9                                                                                                                                                                  | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3  | .2/.2  | .9/.9                  | .8/.8 | .6/.7 | .4/.5 | .3/.4 | .3/.3 | .2/.3  | .2/.2  | 4,150                                             | 4,150   |                                                  |
|                                           | Low ( 620)                                   | 22,300                                                                     | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3  | .1/.2  | .9/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3  | .1/.2  | 4,100                                             | 4,100   |                                                  |
| 1,000                                     |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
|                                           | High (1,225)                                 | 28,900                                                                     | .7/.8                                                                                                                                                                  | .6/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.3  | .2/.2  | .7/.8                  | .6/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.3  | .2/.2  | 5,475                                             | 5,475   |                                                  |
|                                           | Low ( 735)                                   | 28,900                                                                     | .7/.8                                                                                                                                                                  | .6/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.3  | .2/.2  | .7/.8                  | .6/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.3  | .2/.2  | 5,425                                             | 5,425   |                                                  |
| 10,000                                    |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000                                   |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000                                 |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000                                |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000,000                               |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000,000                             |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000,000                            |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000,000,000                           |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000,000,000                         |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000,000,000                        |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000,000,000,000                       |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000,000,000,000                     |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000,000,000,000                    |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000,000,000,000,000                   |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000,000,000,000,000                 |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000,000,000,000,000                |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000,000,000,000,000,000               |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000,000,000,000,000,000             |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000,000,000,000,000,000            |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000,000,000,000,000,000,000           |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000,000,000,000,000,000,000         |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000,000,000,000,000,000,000        |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000,000,000,000,000,000,000,000       |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000,000,000,000,000,000,000,000     |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000,000,000,000,000,000,000,000    |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 100,000,000,000,000,000,000,000,000,000   |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 1,000,000,000,000,000,000,000,000,000,000 |                                              |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |        |        | Target radius (meters) |       |       |       |       |       |        |        |                                                   |         |                                                  |
|                                           |                                              |                                                                            | 5,800                                                                                                                                                                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 | 5,800                  | 6,600 | 7,400 | 8,200 | 9,000 | 9,800 | 10,600 | 11,400 |                                                   |         |                                                  |
| 10,000,000,000,000,000,000,000,000,000,00 |                                              |                                                                            |                                                                                                                                                                        |       |       |       |       |       |        |        |                        |       |       |       |       |       |        |        |                                                   |         |                                                  |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.  
 Low airburst—Precludes fallout.  
 Impact burst—Produces fallout.

\*Initial effects only. Fallout governs.

Figure 9.1.

# PROTECTED Personnel Targets Fighter Aircraft

| Yield<br>KT | HOB option<br>(HOB-meters)<br><br>(See note) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>Un/E Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |         | Offset<br>distance<br>d <sub>o</sub><br>(meters) |
|-------------|----------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------|---------|--------------------------------------------------|
|             |                                              |                                                                             | PROMPT CASUALTIES                                                                                                                                                      |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       | Prompt                                            | Delayed |                                                  |
|             |                                              |                                                                             | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                             | 200                                                                                                                                                                    | 400   | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 800                    | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 |                                                   |         |                                                  |
| 5           | High ( 355)                                  | 3,700                                                                       | .6/.8                                                                                                                                                                  | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .1/.2 | .0/.1 |       | .5/.7                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 425                                               | 675     | (all<br>yields)                                  |
|             | Low ( 227)                                   | 3,700                                                                       | .7/.9                                                                                                                                                                  | .6/.8 | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .6/.7                  | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | 525                                               | 750     |                                                  |
|             | Impact                                       | *2,600                                                                      | .8/.9                                                                                                                                                                  | .6/.9 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .6/.8                  | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 625                                               | 825     |                                                  |
| 10          |                                              |                                                                             | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                             | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 1,000                  | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 |                                                   |         |                                                  |
|             | High ( 402)                                  | 4,600                                                                       | .5/.8                                                                                                                                                                  | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       | .5/.6                  | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 500                                               | 775     |                                                  |
|             | Low ( 240)                                   | 4,600                                                                       | .7/.9                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .5/.7                  | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 625                                               | 850     |                                                  |
|             | Impact                                       | *3,100                                                                      | .7/.9                                                                                                                                                                  | .6/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .6/.7                  | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 700                                               | 925     |                                                  |
| 20          |                                              |                                                                             | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                             | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 |       |       |                                                   |         |                                                  |
|             | High ( 461)                                  | 6,400                                                                       | .7/.9                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .7/.8                  | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 |       |       | 575                                               | 850     |                                                  |
|             | Low ( 257)                                   | 6,400                                                                       | .8/.9                                                                                                                                                                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .7/.9                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | 725                                               | 975     |                                                  |
|             | Impact                                       | *3,900                                                                      | .8/.9                                                                                                                                                                  | .7/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.3 | .2/.3 | .1/.2 | .8/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | 800                                               | 1,025   |                                                  |
| 50          |                                              |                                                                             | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                             | 600                                                                                                                                                                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |       |                                                   |         |                                                  |
|             | High ( 562)                                  | 9,200                                                                       | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | 650                                               | 975     |                                                  |
|             | Low ( 286)                                   | 9,200                                                                       | .8/.9                                                                                                                                                                  | .7/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .8/.9                  | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       | 850                                               | 1,125   |                                                  |
|             | Impact                                       | *5,400                                                                      | .8/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .9/.9                  | .7/.8 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       | 925                                               | 1,175   |                                                  |
| 100         |                                              |                                                                             | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                             | 800                                                                                                                                                                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |       | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 |                                                   |         |                                                  |
|             | High ( 663)                                  | 11,900                                                                      | .6/.8                                                                                                                                                                  | .4/.5 | .2/.3 | .1/.2 | .1/.1 |       |       |       | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 850                                               | 1,050   |                                                  |
|             | Low ( 315)                                   | 11,900                                                                      | .8/.9                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | .9/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 975                                               | 1,250   |                                                  |
|             | Impact                                       | *6,900                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | .9/.9                  | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075                                             | 1,300   |                                                  |
| 200         |                                              |                                                                             | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                             | 800                                                                                                                                                                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |       | 1,200                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 |                                                   |         |                                                  |
|             | High ( 790)                                  | 15,800                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | .7/.8                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | 1,050                                             | 1,150   |                                                  |
|             | Low ( 502)                                   | 15,800                                                                      | .8/.9                                                                                                                                                                  | .5/.7 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | .8/.9                  | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | 1,000                                             | 1,325   |                                                  |
|             | Impact                                       | *8,800                                                                      | .8/.9                                                                                                                                                                  | .6/.8 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,150                                             | 1,450   |                                                  |
| 500         |                                              |                                                                             | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                             | 1,200                                                                                                                                                                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 1,200                  | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 |                                                   |         |                                                  |
|             | High (1,009)                                 | 22,300                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,400                                             | 1,400   |                                                  |
|             | Low ( 620)                                   | 22,300                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       | .8/.9                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 1,350                                             | 1,475   |                                                  |
|             | Impact                                       | *12,000                                                                     | .9/.9                                                                                                                                                                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .9/.9                  | .7/.8 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 1,675                                             | 1,675   |                                                  |
| 1,000       |                                              |                                                                             | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                   |         |                                                  |
|             |                                              |                                                                             | 1,600                                                                                                                                                                  | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 1,600                  | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 |                                                   |         |                                                  |
|             | High (1,225)                                 | 28,900                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .5/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 1,750                                             | 1,750   |                                                  |
|             | Low ( 735)                                   | 28,300                                                                      | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .8/.9                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 1,700                                             | 1,700   |                                                  |
|             | Impact                                       | *15,600                                                                     | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .9/.9                  | .8/.9 | .6/.7 | .5/.6 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | 2,100                                             | 2,100   |                                                  |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.  
Low airburst—Precludes fallout.  
Impact burst—Produces fallout.

\*Initial effects only. Fallout governs.

Figure 9.2.

FTR  
ACFT 1

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# MATERIEL Targets Fighter Aircraft

| Yield | HOB option<br>(HOB-meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage, the second figure is the average coverage. |       |       |       |       |       |       |       |                                        |                        |       |       |       |       |       |       | Offset<br>distance<br>d <sub>o</sub><br>(meters) |                                        |
|-------|----------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------|------------------------|-------|-------|-------|-------|-------|-------|--------------------------------------------------|----------------------------------------|
|       |                            |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |       |       |       |       |       | TANKS AND ARTILLERY                    |                        |       |       |       |       |       |       |                                                  |                                        |
|       |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Target radius (meters)                 |                        |       |       |       |       |       |       |                                                  |                                        |
|       |                            |                                                                            | 200                                                                                                                                                                    | 300   | 400   | 500   | 600   | 700   | 800   | 900   | Prob min<br>R <sub>D</sub><br>(meters) | 100                    | 150   | 200   | 250   | 300   | 350   | 400   |                                                  | 450                                    |
| KT    | (See note)                 | (meters)                                                                   |                                                                                                                                                                        |       |       |       |       |       |       |       |                                        |                        |       |       |       |       |       |       |                                                  |                                        |
| 5     | High (355)                 | 3,700                                                                      | .0/.2                                                                                                                                                                  | .0/.2 | .0/.2 | .0/.1 |       |       |       |       | 0                                      | .0/.0                  |       |       |       |       |       |       | 0                                                | 460 (all<br>yields)                    |
|       | Low (227)                  | 3,700                                                                      | .1/.7                                                                                                                                                                  | .1/.6 | .1/.5 | .1/.4 | .0/.4 | .0/.3 | .0/.2 | .0/.2 | 175                                    | .0/.2                  | .0/.2 | .0/.1 |       |       |       |       | 0                                                |                                        |
|       | Impact                     | *2,600                                                                     | .1/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 325                                    | .0/.4                  | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2                                            |                                        |
| 10    |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 200                                                                                                                                                                    | 400   | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 |                                        | 100                    | 150   | 200   | 250   | 300   | 350   | 400   | 450                                              |                                        |
|       | High (402)                 | 4,600                                                                      | .0/.4                                                                                                                                                                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       |       | 0                                      | .0/.1                  |       |       |       |       |       |       |                                                  | 0                                      |
|       | Low (240)                  | 4,600                                                                      | .7/.8                                                                                                                                                                  | .5/.8 | .4/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 500                                    | .0/.4                  | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .0/.2                                            | 50                                     |
|       | Impact                     | *3,100                                                                     | .4/.8                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.1 |       |       | 450                                    | .0/.6                  | .0/.5 | .1/.5 | .1/.5 | .1/.5 | .1/.4 | .1/.4 | .2/.3                                            | 300                                    |
| 20    |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 400                                                                                                                                                                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 |                                        | 100                    | 200   | 300   | 400   | 500   | 600   | 700   | 800                                              |                                        |
|       | High (461)                 | 6,400                                                                      | .1/.6                                                                                                                                                                  | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 175                                    | .0/.1                  |       |       |       |       |       |       |                                                  | 0                                      |
|       | Low (257)                  | 6,400                                                                      | .8/.9                                                                                                                                                                  | .7/.9 | .6/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 750                                    | .0/.6                  | .1/.6 | .1/.5 | .1/.5 | .1/.4 | .0/.3 | .0/.3 | .0/.2                                            | 175                                    |
|       | Impact                     | *3,900                                                                     | .6/.8                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 |       | 575                                    | .3/.7                  | .3/.7 | .3/.6 | .3/.5 | .3/.5 | .2/.4 | .2/.3 | .2/.2                                            | 400                                    |
| 50    |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 600                                                                                                                                                                    | 1,000 | 1,400 | 1,800 | 2,200 | 2,600 | 3,000 |       |                                        | 400                    | 600   | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800                                            |                                        |
|       | High (562)                 | 9,200                                                                      | .7/.9                                                                                                                                                                  | .4/.7 | .2/.4 | .0/.3 | .0/.2 | .0/.1 |       |       | 575                                    | .0/.1                  |       |       |       |       |       |       |                                                  | 0                                      |
|       | Low (286)                  | 9,200                                                                      | .9/.9                                                                                                                                                                  | .8/.9 | .6/.7 | .3/.5 | .2/.3 | .1/.2 | .1/.2 |       | 1,150                                  | .6/.8                  | .4/.7 | .3/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1                                            | 450                                    |
|       | Impact                     | *5,400                                                                     | .7/.9                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.2 | .1/.2 | .0/.1 |       |       | 850                                    | .5/.8                  | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |                                                  | 550                                    |
| 100   |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 800                                                                                                                                                                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 |                                        | 600                    | 800   | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000                                            |                                        |
|       | High (663)                 | 11,900                                                                     | .9/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,200                                  | .0/.2                  | .0/.1 |       |       |       |       |       |                                                  | 75                                     |
|       | Low (315)                  | 11,900                                                                     | .9/.9                                                                                                                                                                  | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | 1,575                                  | .8/.9                  | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.3 | .1/.2                                            | 750                                    |
|       | Impact                     | *6,900                                                                     | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       | 1,100                                  | .6/.8                  | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1                                            | 750                                    |
| 200   |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 2,000                                                                                                                                                                  | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 |                                        | 1,200                  | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 2,400 | 2,600                                            |                                        |
|       | High (790)                 | 15,800                                                                     | .6/.7                                                                                                                                                                  | .4/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 1,700                                  | .0/.1                  |       |       |       |       |       |       |                                                  | 225                                    |
|       | Low (502)                  | 15,800                                                                     | .8/.9                                                                                                                                                                  | .6/.7 | .5/.6 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 2,025                                  | .4/.6                  | .3/.5 | .2/.4 | .1/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.2                                            | 775                                    |
|       | Impact                     | *8,800                                                                     | .4/.5                                                                                                                                                                  | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       |       | 1,450                                  | .5/.6                  | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1                                            | 975                                    |
| 500   |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 2,800                                                                                                                                                                  | 3,600 | 4,400 | 5,200 | 6,000 | 6,800 | 7,600 | 8,400 |                                        | 1,600                  | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400                                            |                                        |
|       | High (1,009)               | 22,300                                                                     | .7/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |       | 2,575                                  | .1/.2                  | .0/.1 |       |       |       |       |       |                                                  | 525                                    |
|       | Low (620)                  | 22,300                                                                     | .8/.9                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 3,000                                  | .6/.8                  | .4/.6 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .0/.1                                            | 1,400                                  |
|       | Impact                     | *12,000                                                                    | .5/.6                                                                                                                                                                  | .3/.4 | .2/.2 | .1/.2 | .1/.1 |       |       |       | 2,100                                  | .6/.7                  | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 |                                                  | 1,400                                  |
| 1,000 |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |       |       |       |       |       | Prob min<br>R <sub>D</sub><br>(meters) | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 3,600                                                                                                                                                                  | 4,400 | 5,200 | 6,000 | 6,800 | 7,600 | 8,400 | 9,200 |                                        | 2,400                  | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200                                            |                                        |
|       | High (1,225)               | 28,900                                                                     | .7/.8                                                                                                                                                                  | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 3,500                                  | .1/.2                  | .0/.1 |       |       |       |       |       |                                                  | 850                                    |
|       | Low (735)                  | 28,300                                                                     | .8/.9                                                                                                                                                                  | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 4,025                                  | .6/.8                  | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2                                            | 2,075                                  |
|       | Impact                     | *15,600                                                                    | .5/.6                                                                                                                                                                  | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 |       |       | 2,775                                  | .5/.6                  | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1                                            | 1,850                                  |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.  
Low airburst—Precludes fallout.  
Impact burst—Produces fallout.

\*Initial effects only. Fallout governs.

Figure 9.3.

<sup>1</sup>Fighter Aircraft.

# **Troop Safety Distances—Meters** **Fighter Aircraft**

| Range                       | Yield              | Height of burst option | Minimum Distance Required for Troop Vulnerability and Degree of Risk Shown |          |           |                |          |           |                  |          |           |
|-----------------------------|--------------------|------------------------|----------------------------------------------------------------------------|----------|-----------|----------------|----------|-----------|------------------|----------|-----------|
|                             |                    |                        | Unwarned Exposed                                                           |          |           | Warned Exposed |          |           | Warned Protected |          |           |
|                             |                    |                        | NEG Risk                                                                   | MOD Risk | EMER Risk | NEG Risk       | MOD Risk | EMER Risk | NEG Risk         | MOD Risk | EMER Risk |
| Range of aircraft is 800 km | DELTA/<br>5 KT     | High                   | 3,700                                                                      | 2,900    | 2,500     | 2,600          | 2,200    | 1,900     | 2,200            | 1,900    | 1,600     |
|                             |                    | Low                    | 3,700                                                                      | 2,900    | 2,500     | 2,600          | 2,200    | 1,900     | 2,200            | 1,900    | 1,600     |
|                             |                    | Impact <sup>1</sup>    | 2,600                                                                      | 2,200    | 1,900     | 2,600          | 2,200    | 1,900     | 2,200            | 1,900    | 1,700     |
|                             | ECHO/<br>10 KT     | High                   | 4,600                                                                      | 3,700    | 3,500     | 3,200          | 2,300    | 2,000     | 2,500            | 2,000    | 1,700     |
|                             |                    | Low                    | 4,600                                                                      | 3,700    | 3,500     | 3,200          | 2,400    | 2,100     | 2,300            | 2,000    | 1,700     |
|                             |                    | Impact <sup>1</sup>    | 3,100                                                                      | 2,400    | 2,100     | 2,700          | 2,100    | 2,100     | 2,300            | 2,000    | 1,800     |
|                             | FOXTROT/<br>20 KT  | High                   | 6,400                                                                      | 4,600    | 4,000     | 4,100          | 2,800    | 2,300     | 2,600            | 2,200    | 1,800     |
|                             |                    | Low                    | 6,400                                                                      | 4,600    | 4,000     | 4,100          | 2,800    | 2,400     | 2,900            | 2,200    | 1,900     |
|                             |                    | Impact <sup>1</sup>    | 3,900                                                                      | 3,000    | 2,600     | 2,800          | 2,500    | 2,200     | 2,400            | 2,200    | 1,900     |
|                             | GOLF/<br>50 KT     | High                   | 9,200                                                                      | 7,100    | 6,300     | 5,900          | 3,900    | 3,200     | 3,100            | 2,400    | 2,000     |
|                             |                    | Low                    | 9,200                                                                      | 7,100    | 6,300     | 5,900          | 3,900    | 3,200     | 3,200            | 2,500    | 2,000     |
|                             |                    | Impact <sup>1</sup>    | 5,400                                                                      | 4,300    | 3,800     | 3,700          | 2,800    | 2,400     | 2,900            | 2,300    | 2,100     |
|                             | HOTEL/<br>100 KT   | High                   | 11,900                                                                     | 9,500    | 7,800     | 7,800          | 5,200    | 4,200     | 4,300            | 3,200    | 2,200     |
|                             |                    | Low                    | 11,900                                                                     | 9,500    | 7,800     | 7,800          | 5,200    | 4,200     | 4,300            | 3,200    | 2,200     |
|                             |                    | Impact <sup>1</sup>    | 6,900                                                                      | 5,500    | 4,700     | 4,700          | 3,200    | 2,700     | 3,500            | 2,800    | 2,200     |
|                             | INDIA/<br>200 KT   | High                   | 15,800                                                                     | 12,400   | 11,000    | 10,400         | 7,000    | 5,600     | 5,200            | 3,800    | 2,500     |
|                             |                    | Low                    | 15,800                                                                     | 12,400   | 11,000    | 10,400         | 7,000    | 5,600     | 4,800            | 3,600    | 2,300     |
|                             |                    | Impact <sup>1</sup>    | 8,800                                                                      | 7,200    | 6,200     | 6,000          | 4,200    | 3,400     | 4,200            | 3,300    | 2,300     |
|                             | JULIETT/<br>500 KT | High                   | 22,300                                                                     | 18,300   | 16,100    | 14,900         | 9,900    | 7,900     | 6,700            | 4,900    | 3,100     |
|                             |                    | Low                    | 22,300                                                                     | 18,300   | 16,100    | 14,900         | 9,900    | 7,900     | 6,200            | 4,600    | 2,800     |
|                             |                    | Impact <sup>1</sup>    | 12,000                                                                     | 10,200   | 9,000     | 8,400          | 5,800    | 4,700     | 5,500            | 4,300    | 2,900     |
|                             | KILO/<br>1,000 KT  | High                   | 28,900                                                                     | 24,300   | 21,400    | 19,500         | 13,200   | 10,500    | 8,200            | 6,000    | 3,700     |
|                             |                    | Low                    | 28,300                                                                     | 23,800   | 21,000    | 19,100         | 13,000   | 10,300    | 7,600            | 5,700    | 3,400     |
|                             |                    | Impact <sup>1</sup>    | 15,600                                                                     | 13,300   | 11,800    | 10,700         | 7,500    | 6,100     | 6,800            | 5,300    | 3,600     |

NOTE: The troop safety distances include the safety radius for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly disposition. See figure 9.5 for special friendly troop orientations.

<sup>1</sup>Initial effects only. Fallout governs.

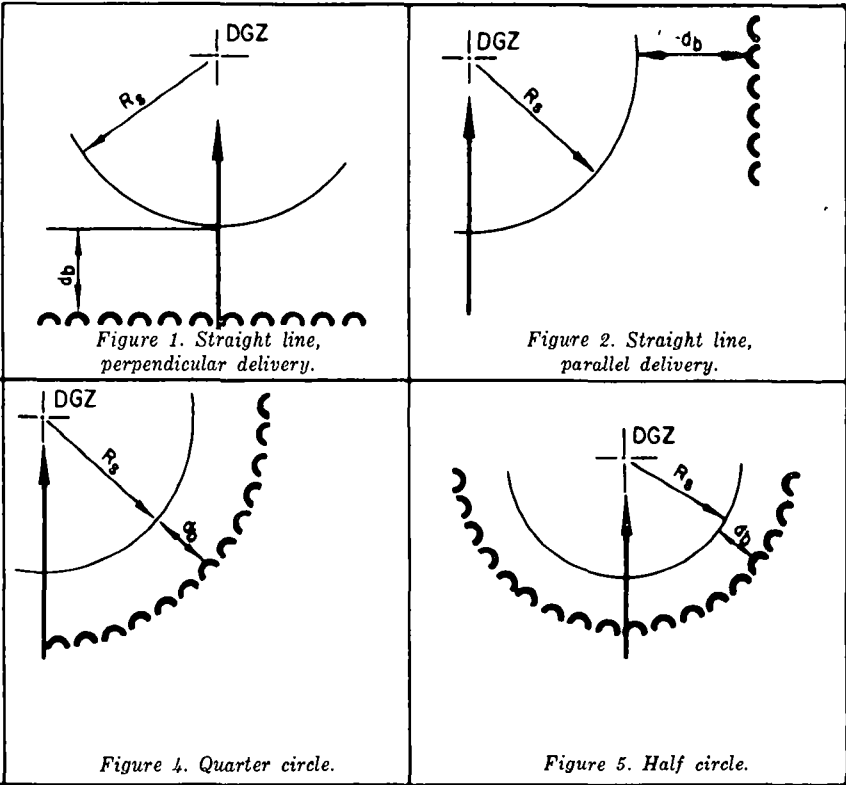
Figure 9.4.

# **SUPPLEMENTARY TROOP SAFETY Tables** **Fighter Aircraft**

The troop safety distances in figure 9.4 are based on the friendly troop orientation shown in figure 1, below. The circular delivery pattern of the fighter aircraft may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

## **Special Troop Safety Orientations**

**LEGEND**  
 DGZ - Desired ground zero.  
 R<sub>s</sub> - Safety radius.  
 d<sub>b</sub> - Buffer distance.  
 ~~~~~ - Friendly troops.  
 ➔ - Direction of fire.



When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figure 9.4 must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options-All Yields | | | | |
|--|--|-------------------------------------|------------------------|---------------------|
| Range (meters) | Straight line, parallel delivery (fig 2) | Straight line, 45° delivery (fig 3) | Quarter circle (fig 4) | Half circle (fig 5) |
| All ranges | 0 | 0 | +100 | +200 |

Figure 9.5.

FTR
ACFT 1

¹Fighter Aircraft.

CASUALTY and DAMAGE Tables
Fighter Aircraft

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,050 | | 0 | | | | | | | | | | | 3,025 | 2,150 | 1,700 | 1,750 | 1,350 | 875 | 1,225 | 875 | 350 |
| 1,025 | | 225 | | | | | | | | | | 0 | 3,025 | 2,150 | 1,700 | 1,750 | 1,350 | 900 | 1,250 | 900 | 425 |
| 1,000 | | 325 | | | | 0 | | | | | | 175 | 3,025 | 2,150 | 1,725 | 1,775 | 1,375 | 925 | 1,275 | 925 | 475 |
| 975 | | 400 | | | | 150 | | | | | | 275 | 3,025 | 2,175 | 1,750 | 1,775 | 1,400 | 950 | 1,300 | 950 | 525 |
| 950 | | 450 | | | | 250 | | | | 0 | | 350 | 3,050 | 2,175 | 1,750 | 1,800 | 1,400 | 1,000 | 1,300 | 975 | 575 |
| 925 | | 500 | | | | 350 | | | | 200 | | 425 | 3,050 | 2,200 | 1,775 | 1,800 | 1,425 | 1,000 | 1,325 | 1,000 | 600 |
| 900 | | 550 | | | | 400 | | | | 300 | 0 | 475 | 3,060 | 2,200 | 1,775 | 1,825 | 1,450 | 1,025 | 1,350 | 1,025 | 650 |
| 875 | | 575 | | | | 450 | | | | 350 | 650 | 650 | 3,075 | 2,225 | 1,800 | 1,825 | 1,450 | 1,050 | 1,350 | 1,050 | 675 |
| 850 | | 625 | | | | 500 | | | | 400 | 750 | 750 | 3,075 | 2,225 | 1,800 | 1,850 | 1,475 | 1,075 | 1,375 | 1,075 | 700 |
| 825 | | 650 | | 0 | | 550 | | | | 450 | 850 | 850 | 3,075 | 2,225 | 1,800 | 1,850 | 1,500 | 1,100 | 1,400 | 1,075 | 725 |
| 800 | 0 | 675 | | 200 | | 575 | | | | 500 | 925 | 925 | 3,100 | 2,250 | 1,825 | 1,875 | 1,500 | 1,100 | 1,400 | 1,100 | 750 |
| 775 | 175 | 700 | | 275 | | 600 | | | | 550 | 975 | 975 | 3,100 | 2,250 | 1,825 | 1,875 | 1,525 | 1,125 | 1,425 | 1,125 | 800 |
| 750 | 275 | 725 | | 350 | 0 | 650 | | | | 775 | 1,050 | 1,050 | 3,100 | 2,275 | 1,850 | 1,900 | 1,525 | 1,150 | 1,425 | 1,150 | 800 |
| 725 | 325 | 750 | | 400 | 175 | 675 | | | | 600 | 1,150 | 1,150 | 3,100 | 2,275 | 1,850 | 1,900 | 1,550 | 1,150 | 1,550 | 1,150 | 825 |
| 700 | 375 | 775 | | 425 | 250 | 700 | | | 150 | 625 | 1,300 | 1,300 | 3,125 | 2,275 | 1,875 | 1,900 | 1,550 | 1,175 | 1,700 | 1,175 | 850 |
| 675 | 425 | 800 | | 475 | 300 | 725 | | | 225 | 650 | 1,500 | 1,500 | 3,125 | 2,275 | 1,875 | 1,925 | 1,550 | 1,200 | 1,725 | 1,175 | 875 |
| 650 | 450 | 825 | | 500 | 350 | 750 | | 0 | 300 | 675 | 1,600 | 1,600 | 3,125 | 2,300 | 1,875 | 1,925 | 1,575 | 1,200 | 1,725 | 1,200 | 900 |
| 625 | 500 | 850 | 0 | 525 | 400 | 750 | | 175 | 350 | 700 | 1,625 | 1,625 | 3,125 | 2,300 | 1,900 | 1,925 | 1,575 | 1,225 | 1,725 | 1,200 | 925 |
| 600 | 525 | 850 | 150 | 550 | 450 | 775 | | 250 | 375 | 725 | 1,650 | 1,650 | 3,125 | 2,300 | 1,900 | 1,950 | 1,600 | 1,225 | 1,725 | 1,225 | 925 |
| 575 | 550 | 875 | 225 | 575 | 475 | 800 | | 300 | 425 | 750 | 1,650 | 1,650 | 3,150 | 2,300 | 1,900 | 1,950 | 1,600 | 1,250 | 1,725 | 1,225 | 950 |
| 550 | 575 | 900 | 300 | 600 | 500 | 825 | | 350 | 450 | 775 | 1,625 | 1,625 | 3,150 | 2,325 | 1,900 | 1,950 | 1,600 | 1,250 | 1,750 | 1,250 | 950 |
| 525 | 600 | 900 | 325 | 625 | 525 | 825 | | 375 | 525 | 775 | 1,625 | 1,625 | 3,150 | 2,325 | 1,925 | 1,950 | 1,625 | 1,275 | 1,725 | 1,250 | 975 |
| 500 | 625 | 925 | 375 | 650 | 550 | 850 | | 425 | 825 | 825 | 1,600 | 1,600 | 3,150 | 2,325 | 1,925 | 1,975 | 1,625 | 1,275 | 1,700 | 1,275 | 975 |
| 475 | 650 | 925 | 400 | 675 | 575 | 875 | 0 | 450 | 875 | 875 | 1,550 | 1,550 | 3,150 | 2,325 | 1,925 | 1,975 | 1,625 | 1,275 | 1,675 | 1,275 | 1,000 |
| 450 | 650 | 950 | 425 | 700 | 600 | 875 | 100 | 475 | 925 | 925 | 1,525 | 1,525 | 3,150 | 2,350 | 1,950 | 1,975 | 1,650 | 1,300 | 1,650 | 1,300 | 1,000 |
| 425 | 675 | 950 | 450 | 700 | 600 | 875 | 175 | 500 | 925 | 925 | 1,475 | 1,475 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,300 | 1,625 | 1,300 | 1,025 |
| 400 | 700 | 975 | 475 | 725 | 625 | 900 | 225 | 525 | 925 | 925 | 1,450 | 1,450 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,300 | 1,600 | 1,300 | 1,025 |
| 375 | 700 | 975 | 500 | 725 | 650 | 900 | 275 | 525 | 925 | 925 | 1,425 | 1,425 | 3,175 | 2,350 | 1,950 | 2,000 | 1,650 | 1,325 | 1,575 | 1,300 | 1,050 |
| 350 | 725 | 975 | 500 | 750 | 650 | 925 | 300 | 550 | 900 | 900 | 1,400 | 1,400 | 3,175 | 2,350 | 1,950 | 2,000 | 1,675 | 1,325 | 1,575 | 1,325 | 1,050 |
| 325 | 725 | 1,000 | 525 | 750 | 675 | 925 | 325 | 575 | 875 | 875 | 1,375 | 1,375 | 3,175 | 2,350 | 1,975 | 2,000 | 1,675 | 1,325 | 1,575 | 1,325 | 1,050 |
| 300 | 750 | 1,000 | 550 | 775 | 675 | 950 | 350 | 575 | 850 | 900 | 1,350 | 1,350 | 3,175 | 2,350 | 1,975 | 2,000 | 1,675 | 1,350 | 1,600 | 1,325 | 1,075 |
| 275 | 750 | 1,000 | 550 | 775 | 700 | 950 | 375 | 600 | 850 | 900 | 1,300 | 1,300 | 3,175 | 2,375 | 1,975 | 2,025 | 1,675 | 1,350 | 1,600 | 1,325 | 1,075 |
| 250 | 750 | 1,025 | 575 | 775 | 700 | 950 | 400 | 600 | 825 | 900 | 1,275 | 1,275 | 3,175 | 2,375 | 1,975 | 2,025 | 1,675 | 1,350 | 1,600 | 1,350 | 1,075 |
| 225 | 775 | 1,025 | 575 | 800 | 700 | 950 | 400 | 600 | 800 | 925 | 1,250 | 1,250 | 3,175 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,075 |
| 200 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 800 | 925 | 1,225 | 1,225 | 3,175 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 175 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 775 | 925 | 1,200 | 1,200 | 3,200 | 2,375 | 1,975 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 150 | 775 | 1,025 | 600 | 800 | 725 | 975 | 425 | 625 | 750 | 925 | 1,175 | 1,175 | 3,200 | 2,375 | 2,000 | 2,025 | 1,700 | 1,350 | 1,600 | 1,350 | 1,100 |
| 125 | 775 | 1,050 | 600 | 800 | 725 | 975 | 450 | 650 | 750 | 925 | 1,150 | 1,150 | 3,200 | 2,375 | 2,000 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 100 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 725 | 950 | 1,125 | 1,125 | 3,150 | 2,375 | 1,950 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 75 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 700 | 950 | 1,125 | 1,125 | 2,800 | 2,200 | 1,800 | 2,025 | 1,700 | 1,375 | 1,625 | 1,350 | 1,100 |
| 50 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 725 | 950 | 1,075 | 1,075 | 2,550 | 2,025 | 1,650 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |
| 25 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 725 | 950 | 1,075 | 1,075 | 2,275 | 1,850 | 1,525 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |
| 0 | 800 | 1,050 | 625 | 825 | 750 | 975 | 450 | 650 | 725 | 950 | 1,050 | 1,050 | 2,125 | 1,700 | 1,375 | 2,025 | 1,700 | 1,375 | 1,625 | 1,375 | 1,100 |

HOB_{fs} = 52 mLow HOB_{min} = 91 mHigh HOB_{min} = 206 mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 9.6a.

CASUALTY and DAMAGE Tables
Fighter Aircraft
All figures in meters

DELTA/5 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d Degree Burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,050 | | | | | | | 1,175 | | | 2,875 | | | 0-5 | | | | 0-500 | |
| 1,025 | | | | | | | 1,200 | | | 2,875 | | | 0-5 | | | | 0-550 | |
| 1,000 | | | | | | | 1,225 | | | 2,875 | | | 0-10 | | | | 0-600 | |
| 975 | | | | | | | 1,225 | | | 2,900 | | | 0-10 | | | | 0-600 | |
| 950 | | | | | | | 1,250 | | | 2,900 | | | 0-10 | | | | 0-650 | |
| 925 | | | | | | | 1,275 | | | 2,900 | | | 0-10 | | | | 0-700 | |
| 900 | | | | | | | 1,300 | | | 2,900 | | | 0-15 | | | | 0-750 | |
| 875 | | | | | | | 1,300 | | | 2,925 | | | 0-15 | | | | 0-750 | |
| 850 | | | | | | | 1,325 | | | 2,925 | | | 0-20 | | | | 0-800 | |
| 825 | | | | | | | 1,350 | | | 2,925 | | 0 | 0-20 | | 0 | | 0-800 | |
| 800 | | | | | | | 1,350 | | | 2,925 | | 0-5 | 0-25 | | | 0-50 | 0-850 | |
| 775 | | | | | | | 1,375 | | | 2,900 | | 0-5 | 0-30 | | | 0-200 | 0-850 | |
| 750 | | | | | | | 1,375 | 0 | | 2,900 | | 0-5 | 0-35 | | | 0-300 | 0-900 | |
| 725 | | | | | | | 1,400 | 75 | | 2,900 | | 0-5 | 0-45 | | | 0-350 | 0-900 | |
| 700 | | | | | | | 1,400 | 200 | | 2,900 | | 0-5 | 5-50 | | | 0-400 | 50-950 | |
| 675 | | | | | | | 1,425 | 275 | | 2,875 | | 0-10 | 5-65 | | | 0-450 | 200-950 | |
| 650 | | | | | | | 1,425 | 325 | | 2,875 | | 0-10 | 5-80 | | | 0-500 | 300-950 | |
| 625 | | | | | | | 1,450 | 375 | | 2,850 | | 0-10 | 5-100 | | | 0-500 | 350-1,000 | |
| 600 | | | | | | | 1,450 | 425 | | 2,850 | | 0-10 | 5-120 | | | 0-550 | 400-1,000 | |
| 575 | | | | | | | 1,475 | 450 | | 2,850 | 0 | 0-15 | 10-150 | | 0 | 0-600 | 400-1,000 | |
| 550 | | | | | | | 1,475 | 475 | | 2,825 | 0-5 | 0-20 | 10-190 | | 0-50 | 0-600 | 450-1,050 | |
| 525 | | | | | | | 1,475 | 500 | | 2,825 | 0-5 | 0-25 | 10-250 | | 0-200 | 0-650 | 450-1,050 | |
| 500 | | | | 0 | | | 1,500 | 525 | | 2,800 | 0-5 | 0-25 | 15-300 | | 0-250 | 0-650 | 500-1,050 | |
| 475 | | | | 50 | | | 1,500 | 550 | | 2,800 | 0-5 | 0-40 | 20-450 | | 0-300 | 0-650 | 550-1,050 | |
| 450 | | | | 100 | | | 1,500 | 575 | | 2,775 | 0-5 | 5-50 | 25-570 | | 0-300 | 50-700 | 550-1,100 | |
| 425 | | | | 150 | | | 1,525 | 600 | | 2,750 | 0-10 | 5-70 | 30-750 | | 0-350 | 150-700 | 600-1,100 | |
| 400 | 0 | | | 200 | | 0 | 1,525 | 600 | 0 | 2,725 | 0-10 | 5-90 | 40-1,000 | | 0-400 | 200-700 | 600-1,100 | |
| 375 | 50 | | | 250 | | 400 | 1,525 | 625 | 125 | 2,725 | 0-15 | 5-110 | 50-1,300 | | 0-400 | 250-750 | 600-1,100 | |
| 350 | 100 | | | 300 | | 425 | 1,525 | 650 | 175 | 2,700 | 0-15 | 10-140 | 70-1,600 | | 0-400 | 300-750 | 650-1,100 | |
| 325 | 150 | | 0 | 325 | | 425 | 1,550 | 650 | 225 | 2,675 | 0-20 | 10-165 | 80-1,980 | | 0-400 | 350-750 | 650-1,100 | |
| 300 | 250 | 0 | 50 | 350 | | 425 | 1,550 | 675 | 250 | 2,650 | 0-25 | 10-200 | 100-2,340 | | 0-450 | 350-750 | 650-1,150 | |
| 275 | 375 | 25 | 100 | 375 | | 450 | 1,550 | 675 | 275 | 2,625 | 0-25 | 10-240 | 120-2,820 | | 0-500 | 400-800 | 650-1,150 | |
| 250 | 400 | 75 | 150 | 400 | | 450 | 1,550 | 675 | 300 | 2,600 | 0-35 | 15-275 | 140-3,300 | | 0-500 | 400-800 | 700-1,150 | |
| 225 | 425 | 100 | 175 | 400 | | 450 | 1,550 | 700 | 325 | 2,575 | 0-35 | 15-325 | 160-3,900 | | 0-550 | 400-800 | 700-1,150 | |
| 200 | 450 | 125 | 200 | 425 | | 475 | 1,550 | 700 | 350 | 2,550 | 5-50 | 20-450 | 220-5,400 | | 50-550 | 450-800 | 700-1,150 | |
| 175 | 450 | 175 | 225 | 450 | 0 | 475 | 1,575 | 700 | 350 | 2,525 | 5-60 | 25-550 | 280-6,600 | 0 | 100-550 | 450-800 | 700-1,150 | 0 |
| 150 | 475 | 225 | 225 | 450 | 400 | 500 | 1,575 | 725 | 375 | 2,475 | 5-80 | 30-700 | 340-8,400 | 0-5 | 150-550 | 450-800 | 700-1,150 | 0-50 |
| 125 | 500 | 275 | 250 | 475 | 425 | 500 | 1,575 | 725 | 375 | 2,450 | 5-100 | 40-940 | 450-11,000 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-100 |
| 100 | 500 | 300 | 250 | 475 | 425 | 525 | 1,550 | 725 | 400 | 2,425 | 5-125 | 50-1,140 | 540-13,500 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-150 |
| 75 | 500 | 300 | 275 | 475 | 425 | 525 | 1,400 | 650 | 350 | 2,400 | 10-160 | 60-1,450 | 700-17,400 | 0-5 | 200-550 | 450-800 | 700-1,150 | 0-150 |
| 50 | 475 | 300 | 275 | 475 | 400 | 500 | 1,250 | 575 | 325 | 2,350 | FALLOUT GOVERNS | | | | | | | |
| 25 | 450 | 275 | 250 | 425 | 350 | 475 | 1,100 | 500 | 275 | 2,325 | | | | | | | | |
| 0 | 325 | 225 | 175 | 375 | 300 | 400 | 925 | 450 | 250 | 2,275 | | | | | | | | |

FTR
ACFT 1

Figure 9.6a continued.

CASUALTY and DAMAGE Tables
Fighter Aircraft

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOR | Exposed personnel | | Protected personnel | | Personnel in APC | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,200 | | 0 | | | | | | | | | 600 | 600 | 3,850 | 2,975 | 2,700 | 2,375 | 1,375 | 925 | 1,275 | 900 | 100 |
| 1,150 | | 250 | | | | | | | | | 850 | 850 | 3,850 | 3,000 | 2,725 | 2,400 | 1,400 | 1,000 | 1,325 | 950 | 350 |
| 1,100 | | 400 | | | | | 0 | | | 0 | 1,000 | 1,000 | 3,875 | 3,000 | 2,750 | 2,425 | 1,450 | 1,050 | 1,375 | 1,025 | 500 |
| 1,050 | | 525 | | | | | 325 | | | 150 | 1,150 | 1,150 | 3,875 | 3,025 | 2,750 | 2,425 | 1,500 | 1,100 | 1,400 | 1,075 | 600 |
| 1,000 | | 625 | | | | | 450 | | | 350 | 1,300 | 1,300 | 3,900 | 3,050 | 2,775 | 2,450 | 1,525 | 1,150 | 1,500 | 1,125 | 675 |
| 950 | | 700 | | 0 | | | 550 | | | 475 | 1,500 | 1,500 | 3,900 | 3,050 | 2,800 | 2,475 | 1,550 | 1,200 | 1,650 | 1,150 | 750 |
| 900 | 0 | 750 | | 200 | | | 625 | | | 550 | 1,750 | 1,750 | 3,925 | 3,075 | 2,800 | 2,500 | 1,575 | 1,225 | 2,100 | 1,200 | 800 |
| 850 | 275 | 800 | | 350 | 0 | | 700 | | | 0 | 625 | 2,125 | 2,125 | 3,925 | 3,075 | 2,825 | 2,500 | 1,600 | 1,250 | 2,175 | 850 |
| 800 | 400 | 850 | | 450 | 300 | | 750 | | | 175 | 700 | 2,175 | 2,175 | 3,950 | 3,100 | 2,850 | 2,525 | 1,625 | 1,300 | 2,175 | 900 |
| 775 | 450 | 875 | | 500 | 350 | | 775 | | | 475 | 725 | 2,200 | 2,200 | 3,950 | 3,100 | 2,850 | 2,525 | 1,650 | 1,300 | 2,175 | 925 |
| 750 | 500 | 900 | | 550 | 400 | | 800 | | 0 | 550 | 750 | 2,200 | 2,200 | 3,950 | 3,100 | 2,850 | 2,550 | 1,650 | 1,325 | 2,175 | 950 |
| 725 | 525 | 925 | 0 | 575 | 450 | | 825 | | 175 | 625 | 775 | 2,200 | 2,200 | 3,950 | 3,125 | 2,850 | 2,550 | 1,675 | 1,350 | 2,175 | 950 |
| 700 | 550 | 950 | 100 | 600 | 475 | | 850 | | 250 | 675 | 800 | 2,175 | 2,175 | 3,975 | 3,125 | 2,875 | 2,550 | 1,675 | 1,350 | 2,225 | 975 |
| 675 | 600 | 950 | 200 | 625 | 525 | | 875 | | 325 | 725 | 825 | 2,175 | 2,175 | 3,975 | 3,125 | 2,875 | 2,550 | 1,700 | 1,350 | 2,200 | 1,000 |
| 650 | 625 | 975 | 275 | 650 | 550 | | 875 | | 375 | 1,200 | 1,200 | 2,150 | 2,150 | 3,975 | 3,150 | 2,875 | 2,575 | 1,700 | 1,375 | 2,175 | 1,000 |
| 625 | 650 | 1,000 | 325 | 675 | 575 | | 900 | | 400 | 1,225 | 1,225 | 2,125 | 2,125 | 3,975 | 3,150 | 2,875 | 2,575 | 1,700 | 1,400 | 2,150 | 1,025 |
| 600 | 650 | 1,000 | 375 | 700 | 600 | | 925 | | 450 | 1,250 | 1,250 | 2,100 | 2,100 | 3,975 | 3,150 | 2,900 | 2,575 | 1,725 | 1,400 | 2,125 | 1,050 |
| 575 | 675 | 1,025 | 400 | 725 | 625 | | 950 | | 475 | 1,275 | 1,275 | 2,075 | 2,075 | 3,975 | 3,150 | 2,900 | 2,600 | 1,725 | 1,400 | 2,100 | 1,050 |
| 550 | 700 | 1,025 | 450 | 750 | 650 | | 950 | 0 | 500 | 1,275 | 1,275 | 2,050 | 2,050 | 3,975 | 3,150 | 2,900 | 2,600 | 1,725 | 1,425 | 2,075 | 1,075 |
| 525 | 725 | 1,050 | 475 | 750 | 675 | | 975 | 150 | 525 | 1,250 | 1,250 | 2,000 | 2,000 | 4,000 | 3,150 | 2,900 | 2,600 | 1,750 | 1,425 | 2,025 | 1,075 |
| 500 | 825 | 1,050 | 500 | 775 | 675 | | 975 | 225 | 550 | 1,250 | 1,250 | 1,975 | 1,975 | 4,000 | 3,175 | 2,900 | 2,600 | 1,750 | 1,450 | 2,000 | 1,100 |
| 475 | 850 | 1,075 | 525 | 800 | 700 | | 1,000 | 275 | 575 | 1,225 | 1,225 | 1,950 | 1,950 | 4,000 | 3,175 | 2,925 | 2,600 | 1,750 | 1,450 | 1,950 | 1,100 |
| 450 | 850 | 1,075 | 550 | 800 | 725 | | 1,000 | 300 | 600 | 1,200 | 1,200 | 1,900 | 1,900 | 4,000 | 3,175 | 2,925 | 2,600 | 1,750 | 1,450 | 1,925 | 1,125 |
| 425 | 850 | 1,100 | 575 | 825 | 725 | | 1,025 | 350 | 625 | 1,175 | 1,175 | 1,850 | 1,850 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,450 | 1,875 | 1,125 |
| 400 | 850 | 1,100 | 575 | 825 | 750 | | 1,025 | 375 | 625 | 1,175 | 1,175 | 1,825 | 1,825 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,475 | 1,850 | 1,125 |
| 375 | 875 | 1,100 | 600 | 850 | 750 | | 1,025 | 400 | 650 | 1,150 | 1,150 | 1,775 | 1,775 | 4,000 | 3,175 | 2,925 | 2,625 | 1,775 | 1,475 | 1,800 | 1,150 |
| 350 | 875 | 1,125 | 625 | 850 | 775 | | 1,050 | 425 | 650 | 1,125 | 1,125 | 1,750 | 1,750 | 4,000 | 3,175 | 2,925 | 2,625 | 1,800 | 1,475 | 1,750 | 1,150 |
| 325 | 875 | 1,125 | 650 | 850 | 775 | | 1,050 | 450 | 675 | 1,100 | 1,100 | 1,700 | 1,700 | 4,025 | 3,175 | 2,950 | 2,625 | 1,800 | 1,475 | 1,725 | 1,150 |
| 300 | 875 | 1,125 | 650 | 875 | 800 | | 1,050 | 450 | 675 | 1,075 | 1,075 | 1,650 | 1,650 | 4,025 | 3,175 | 2,950 | 2,625 | 1,800 | 1,500 | 1,725 | 1,175 |
| 275 | 875 | 1,150 | 650 | 875 | 800 | | 1,075 | 475 | 700 | 1,075 | 1,075 | 1,625 | 1,625 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,725 | 1,175 |
| 250 | 875 | 1,150 | 650 | 900 | 800 | | 1,075 | 475 | 700 | 1,050 | 1,050 | 1,600 | 1,600 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,175 |
| 225 | 875 | 1,150 | 675 | 900 | 825 | | 1,075 | 500 | 700 | 1,025 | 1,025 | 1,575 | 1,575 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,175 |
| 200 | 875 | 1,150 | 675 | 900 | 825 | | 1,075 | 500 | 725 | 1,025 | 1,050 | 1,550 | 1,550 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,200 |
| 175 | 875 | 1,150 | 700 | 900 | 825 | | 1,075 | 525 | 725 | 1,000 | 1,050 | 1,500 | 1,500 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,200 |
| 150 | 875 | 1,150 | 700 | 900 | 825 | | 1,100 | 525 | 725 | 975 | 1,050 | 1,475 | 1,475 | 4,025 | 3,200 | 2,950 | 2,650 | 1,800 | 1,500 | 1,750 | 1,200 |
| 125 | 875 | 1,175 | 700 | 900 | 850 | | 1,100 | 525 | 725 | 975 | 1,050 | 1,450 | 1,450 | 3,800 | 3,050 | 2,850 | 2,600 | 1,825 | 1,525 | 1,750 | 1,200 |
| 100 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 525 | 750 | 950 | 1,050 | 1,425 | 1,425 | 3,575 | 2,825 | 2,600 | 2,525 | 1,825 | 1,525 | 1,750 | 1,200 |
| 75 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 550 | 750 | 925 | 1,050 | 1,400 | 1,400 | 3,325 | 2,600 | 2,350 | 2,450 | 1,825 | 1,525 | 1,750 | 1,200 |
| 50 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 550 | 750 | 900 | 1,050 | 1,375 | 1,375 | 3,075 | 2,350 | 2,100 | 2,350 | 1,825 | 1,525 | 1,750 | 1,200 |
| 25 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 550 | 750 | 900 | 1,050 | 1,350 | 1,350 | 2,850 | 2,125 | 1,850 | 2,275 | 1,825 | 1,525 | 1,750 | 1,200 |
| 0 | 900 | 1,175 | 700 | 925 | 850 | | 1,100 | 550 | 750 | 875 | 1,050 | 1,325 | 1,325 | 2,575 | 1,875 | 1,600 | 2,175 | 1,825 | 1,525 | 1,750 | 1,200 |

HOB_{fs} = 65 mLow HOB_{min} = 115 mHigh HOB_{min} = 259 mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 9.6b.

CASUALTY and DAMAGE Tables
Fighter Aircraft
All figures in meters

ECHO/10 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,200 | | | | | | | 1,775 | | | 3,650 | | | 0-5 | | | | 0-650 | |
| 1,150 | | | | | | | 1,825 | | | 3,675 | | | 0-5 | | | | 0-750 | |
| 1,100 | | | | | | | 1,850 | | | 3,675 | | | 0-10 | | | | 0-800 | |
| 1,050 | | | | | | | 1,875 | 0 | | 3,675 | | | 0-10 | | | | 0-850 | |
| 1,000 | | | | | | | 1,900 | 150 | | 3,675 | | | 0-15 | | | | 0-950 | |
| 950 | | | | | | | 1,925 | 350 | | 3,675 | | 0 | 0-20 | | | 0 | 0-1,000 | |
| 900 | | | | | | | 1,950 | 450 | | 3,650 | | 0-5 | 0-25 | | | 0-50 | 0-1,050 | |
| 850 | | | | | | | 1,975 | 550 | | 3,625 | | 0-5 | 0-35 | | | 0-350 | 0-1,050 | |
| 800 | | | | | | | 2,000 | 625 | | 3,600 | | 0-5 | 5-45 | | | 0-450 | 50-1,100 | |
| 775 | | | | | | | 2,000 | 650 | | 3,600 | | 0-5 | 5-55 | | | 0-500 | 200-1,150 | |
| 750 | | | | | | | 2,025 | 675 | | 3,600 | | 0-10 | 5-70 | | | 0-550 | 300-1,150 | |
| 725 | | | | | | | 2,025 | 700 | | 3,575 | | 0-10 | 5-85 | | | 0-550 | 350-1,150 | |
| 700 | | | | | | | 2,025 | 725 | | 3,575 | | 0-10 | 5-100 | | | 0-600 | 400-1,200 | |
| 675 | | | | | | | 2,050 | 750 | | 3,550 | | 0-15 | 5-125 | | | 0-600 | 450-1,200 | |
| 650 | | | | | | | 2,050 | 775 | | 3,550 | | 0-15 | 10-160 | | | 0-650 | 500-1,200 | |
| 625 | | | | 0 | | | 2,050 | 800 | | 3,525 | 0 | 0-20 | 10-200 | | 0 | 0-700 | 500-1,200 | |
| 600 | | | | 50 | | | 2,075 | 800 | | 3,525 | 0-5 | 0-20 | 10-240 | | 0-50 | 0-700 | 550-1,250 | |
| 575 | | | | 125 | | | 2,075 | 825 | | 3,500 | 0-5 | 0-25 | 15-300 | | 0-200 | 0-700 | 600-1,250 | |
| 550 | | | | 175 | | | 2,075 | 850 | 0 | 3,475 | 0-5 | 0-35 | 15-380 | | 0-250 | 0-750 | 600-1,250 | |
| 525 | | | | 225 | | | 2,075 | 875 | 125 | 3,450 | 0-5 | 0-45 | 20-500 | | 0-300 | 0-750 | 650-1,250 | |
| 500 | 0 | | | 275 | | | 2,100 | 875 | 200 | 3,450 | 0-10 | 5-50 | 25-600 | | 0-350 | 50-800 | 650-1,300 | |
| 475 | 50 | | | 325 | | 0 | 2,100 | 900 | 250 | 3,425 | 0-10 | 5-75 | 40-900 | | 0-400 | 150-800 | 650-1,300 | |
| 450 | 125 | | | 375 | | 575 | 2,100 | 900 | 300 | 3,400 | 0-15 | 5-100 | 50-1,140 | | 0-400 | 250-800 | 700-1,300 | |
| 425 | 175 | | 0 | 400 | | 600 | 2,100 | 925 | 325 | 3,375 | 0-15 | 5-125 | 60-1,500 | | 0-450 | 300-800 | 700-1,300 | |
| 400 | 225 | | 25 | 425 | | 600 | 2,125 | 925 | 375 | 3,350 | 0-20 | 10-170 | 80-1,980 | | 0-450 | 300-850 | 700-1,300 | |
| 375 | 350 | 0 | 75 | 475 | | 600 | 2,125 | 950 | 400 | 3,325 | 0-25 | 10-220 | 120-2,600 | | 0-500 | 350-850 | 750-1,300 | |
| 350 | 475 | 25 | 125 | 475 | | 625 | 2,125 | 950 | 400 | 3,300 | 0-30 | 15-270 | 140-3,200 | | 0-500 | 400-850 | 750-1,350 | |
| 325 | 500 | 75 | 175 | 500 | | 625 | 2,125 | 950 | 425 | 3,275 | 0-40 | 15-330 | 160-3,960 | | 0-500 | 400-850 | 750-1,350 | |
| 300 | 550 | 100 | 200 | 525 | | 625 | 2,125 | 975 | 450 | 3,250 | 5-45 | 20-390 | 200-4,680 | | 50-550 | 400-850 | 750-1,350 | |
| 275 | 575 | 150 | 250 | 550 | | 625 | 2,125 | 975 | 475 | 3,225 | 5-55 | 20-470 | 230-5,650 | 0 | 150-550 | 450-900 | 800-1,350 | 0 |
| 250 | 575 | 175 | 275 | 550 | | 625 | 2,125 | 975 | 475 | 3,200 | 5-65 | 25-550 | 270-6,600 | 0-5 | 200-550 | 450-900 | 800-1,350 | 0-50 |
| 225 | 600 | 225 | 275 | 575 | 0 | 650 | 2,150 | 975 | 500 | 3,175 | 5-75 | 30-650 | 320-7,800 | 0-5 | 200-600 | 450-900 | 800-1,350 | 0-150 |
| 200 | 625 | 275 | 300 | 600 | 450 | 650 | 2,150 | 1,000 | 500 | 3,150 | 5-100 | 40-900 | 440-10,800 | 0-5 | 250-600 | 500-900 | 800-1,350 | 0-150 |
| 175 | 650 | 350 | 325 | 600 | 525 | 650 | 2,150 | 1,000 | 500 | 3,125 | 5-125 | 50-1,100 | 540-13,200 | 0-5 | 250-600 | 500-900 | 800-1,350 | 0-200 |
| 150 | 650 | 375 | 325 | 625 | 550 | 650 | 2,150 | 1,000 | 525 | 3,075 | 10-160 | 60-1,400 | 680-16,800 | 0-5 | 300-600 | 500-900 | 800-1,350 | 0-200 |
| 125 | 650 | 375 | 350 | 625 | 575 | 650 | 2,075 | 975 | 525 | 3,050 | 10-200 | 75-1,850 | 900-22,200 | 0-5 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 100 | 650 | 375 | 350 | 650 | 575 | 650 | 1,900 | 900 | 475 | 3,025 | 10-250 | 90-2,250 | 1,080-27,000 | 0-10 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 75 | 650 | 400 | 375 | 625 | 575 | 650 | 1,750 | 825 | 450 | 2,975 | 15-320 | 120-2,900 | 1,400-34,800 | 0-10 | 300-600 | 500-900 | 800-1,350 | 0-250 |
| 50 | 625 | 375 | 350 | 600 | 525 | 625 | 1,575 | 750 | 400 | 2,950 | FALLOUT GOVERNS | | | | | | | |
| 25 | 550 | 350 | 300 | 575 | 500 | 575 | 1,425 | 675 | 375 | 2,900 | | | | | | | | |
| 0 | 450 | 300 | 250 | 500 | 425 | 500 | 1,250 | 600 | 325 | 2,875 | | | | | | | | |

FTR
ACFT 1

Figure 9.6b continued.

¹Fighter Aircraft.

CASUALTY and DAMAGE Tables
Fighter Aircraft

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of sofety | | | | | | | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | | | | | | | | | | | | | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,200 | | 400 | | | | 250 | | | | 0 | 1,600 | 1,600 | 5,725 | 3,850 | 3,275 | 3,350 | 1,950 | 1,375 | 2,050 | 1,075 | 575 |
| 1,150 | | 525 | | | | 425 | | | | 250 | 1,750 | 1,750 | 5,725 | 3,875 | 3,300 | 3,375 | 1,975 | 1,425 | 2,475 | 1,125 | 675 |
| 1,100 | | 625 | | | | 550 | | | | 425 | 1,950 | 1,950 | 5,750 | 3,875 | 3,325 | 3,400 | 2,000 | 1,450 | 2,700 | 1,150 | 750 |
| 1,050 | | 700 | | 0 | | 625 | | | | 525 | 2,350 | 2,350 | 5,750 | 3,900 | 3,350 | 3,400 | 2,025 | 1,500 | 2,750 | 1,275 | 825 |
| 1,000 | 0 | 775 | | 225 | 0 | 700 | | | 0 | 625 | 2,625 | 2,625 | 5,750 | 3,900 | 3,350 | 3,425 | 2,050 | 1,525 | 2,750 | 1,400 | 875 |
| 950 | 300 | 825 | | 400 | 175 | 775 | | | 475 | 700 | 2,675 | 2,675 | 5,775 | 3,925 | 3,375 | 3,425 | 2,075 | 1,550 | 2,750 | 1,650 | 925 |
| 900 | 425 | 875 | | 500 | 350 | 825 | | | 625 | 750 | 2,700 | 2,700 | 5,775 | 3,925 | 3,375 | 3,450 | 2,100 | 1,600 | 2,750 | 1,800 | 975 |
| 850 | 525 | 925 | | 575 | 450 | 875 | | 0 | 800 | 825 | 2,700 | 2,700 | 5,775 | 3,950 | 3,400 | 3,475 | 2,125 | 1,625 | 2,775 | 1,875 | 1,025 |
| 800 | 600 | 975 | 0 | 650 | 550 | 925 | | 275 | 1,150 | 1,150 | 2,650 | 2,650 | 5,800 | 3,950 | 3,400 | 3,475 | 2,150 | 1,650 | 2,725 | 1,850 | 1,075 |
| 775 | 625 | 1,000 | 200 | 675 | 575 | 950 | | 350 | 1,450 | 1,450 | 2,650 | 2,650 | 5,800 | 3,950 | 3,425 | 3,475 | 2,150 | 1,650 | 2,700 | 1,850 | 1,075 |
| 750 | 650 | 1,025 | 275 | 700 | 600 | 975 | | 400 | 1,525 | 1,525 | 2,625 | 2,625 | 5,800 | 3,950 | 3,425 | 3,475 | 2,150 | 1,675 | 2,675 | 1,825 | 1,100 |
| 725 | 675 | 1,025 | 325 | 725 | 625 | 975 | | 450 | 1,550 | 1,550 | 2,575 | 2,575 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,675 | 2,650 | 1,800 | 1,125 |
| 700 | 700 | 1,050 | 400 | 750 | 675 | 1,000 | | 475 | 1,550 | 1,550 | 2,525 | 2,525 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,700 | 2,600 | 1,800 | 1,125 |
| 675 | 725 | 1,075 | 425 | 775 | 700 | 1,025 | | 525 | 1,525 | 1,525 | 2,475 | 2,475 | 5,800 | 3,975 | 3,425 | 3,500 | 2,175 | 1,700 | 2,575 | 1,775 | 1,150 |
| 650 | 1,000 | 1,075 | 475 | 800 | 725 | 1,050 | 0 | 550 | 1,525 | 1,525 | 2,450 | 2,450 | 5,825 | 3,975 | 3,450 | 3,500 | 2,200 | 1,700 | 2,550 | 1,750 | 1,150 |
| 625 | 1,100 | 1,100 | 500 | 825 | 725 | 1,050 | 125 | 575 | 1,525 | 1,525 | 2,400 | 2,400 | 5,825 | 3,975 | 3,450 | 3,500 | 2,200 | 1,725 | 2,500 | 1,725 | 1,175 |
| 600 | 1,125 | 1,125 | 525 | 825 | 750 | 1,075 | 200 | 600 | 1,500 | 1,500 | 2,350 | 2,350 | 5,825 | 3,975 | 3,450 | 3,525 | 2,200 | 1,725 | 2,475 | 1,700 | 1,200 |
| 575 | 1,125 | 1,125 | 550 | 850 | 775 | 1,075 | 275 | 625 | 1,500 | 1,500 | 2,325 | 2,325 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,425 | 1,675 | 1,200 |
| 550 | 1,150 | 1,150 | 575 | 875 | 800 | 1,100 | 325 | 650 | 1,475 | 1,475 | 2,275 | 2,275 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,400 | 1,650 | 1,225 |
| 525 | 1,150 | 1,150 | 600 | 875 | 800 | 1,100 | 350 | 675 | 1,450 | 1,450 | 2,250 | 2,250 | 5,825 | 4,000 | 3,450 | 3,525 | 2,225 | 1,750 | 2,350 | 1,625 | 1,225 |
| 500 | 1,150 | 1,150 | 625 | 900 | 825 | 1,125 | 400 | 700 | 1,425 | 1,425 | 2,200 | 2,200 | 5,825 | 4,000 | 3,475 | 3,525 | 2,225 | 1,750 | 2,300 | 1,600 | 1,225 |
| 475 | 1,150 | 1,175 | 650 | 900 | 850 | 1,125 | 425 | 700 | 1,400 | 1,400 | 2,175 | 2,175 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,275 | 1,575 | 1,250 |
| 450 | 1,150 | 1,175 | 650 | 925 | 850 | 1,150 | 450 | 725 | 1,375 | 1,375 | 2,150 | 2,150 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,225 | 1,550 | 1,250 |
| 425 | 1,150 | 1,175 | 675 | 925 | 875 | 1,150 | 475 | 750 | 1,350 | 1,350 | 2,100 | 2,100 | 5,825 | 4,000 | 3,475 | 3,525 | 2,250 | 1,775 | 2,175 | 1,550 | 1,275 |
| 400 | 1,150 | 1,200 | 700 | 950 | 875 | 1,150 | 500 | 750 | 1,350 | 1,350 | 2,075 | 2,075 | 5,825 | 4,000 | 3,475 | 3,550 | 2,250 | 1,775 | 2,125 | 1,550 | 1,275 |
| 375 | 1,150 | 1,200 | 700 | 950 | 875 | 1,175 | 525 | 775 | 1,325 | 1,325 | 2,050 | 2,050 | 5,850 | 4,025 | 3,475 | 3,550 | 2,250 | 1,800 | 2,100 | 1,575 | 1,275 |
| 350 | 1,150 | 1,200 | 725 | 975 | 900 | 1,175 | 525 | 775 | 1,300 | 1,300 | 2,025 | 2,025 | 5,850 | 4,025 | 3,475 | 3,550 | 2,250 | 1,800 | 2,050 | 1,575 | 1,275 |
| 325 | 1,150 | 1,225 | 725 | 975 | 900 | 1,175 | 550 | 775 | 1,275 | 1,275 | 1,975 | 1,975 | 5,850 | 4,025 | 3,475 | 3,550 | 2,275 | 1,800 | 2,025 | 1,575 | 1,300 |
| 300 | 1,150 | 1,225 | 750 | 975 | 925 | 1,175 | 550 | 800 | 1,275 | 1,275 | 1,950 | 1,950 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 2,000 | 1,575 | 1,300 |
| 275 | 1,150 | 1,225 | 750 | 1,000 | 925 | 1,200 | 575 | 800 | 1,250 | 1,250 | 1,925 | 1,925 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 1,950 | 1,575 | 1,300 |
| 250 | 1,150 | 1,225 | 750 | 1,000 | 925 | 1,200 | 575 | 825 | 1,225 | 1,225 | 1,900 | 1,900 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,800 | 1,925 | 1,600 | 1,300 |
| 225 | 1,150 | 1,250 | 775 | 1,000 | 950 | 1,200 | 600 | 825 | 1,225 | 1,225 | 1,875 | 1,875 | 5,850 | 4,025 | 3,500 | 3,500 | 2,275 | 1,825 | 1,900 | 1,600 | 1,325 |
| 200 | 1,150 | 1,250 | 775 | 1,000 | 950 | 1,200 | 600 | 825 | 1,200 | 1,200 | 1,850 | 1,850 | 5,850 | 4,025 | 3,500 | 3,550 | 2,275 | 1,825 | 1,875 | 1,600 | 1,325 |
| 175 | 1,125 | 1,250 | 775 | 1,000 | 950 | 1,200 | 625 | 825 | 1,175 | 1,175 | 1,825 | 1,825 | 5,725 | 3,925 | 3,400 | 3,500 | 2,200 | 1,800 | 1,825 | 1,600 | 1,325 |
| 150 | 1,125 | 1,250 | 800 | 1,000 | 950 | 1,225 | 625 | 850 | 1,175 | 1,175 | 1,800 | 1,800 | 5,400 | 3,725 | 3,200 | 3,325 | 2,225 | 1,775 | 1,850 | 1,600 | 1,325 |
| 125 | 1,100 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,150 | 1,175 | 1,775 | 1,775 | 5,100 | 3,525 | 3,000 | 3,150 | 2,175 | 1,750 | 1,850 | 1,600 | 1,325 |
| 100 | 1,075 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,150 | 1,175 | 1,750 | 1,750 | 4,750 | 3,300 | 2,800 | 2,975 | 2,150 | 1,725 | 1,850 | 1,600 | 1,325 |
| 75 | 1,050 | 1,250 | 800 | 1,025 | 950 | 1,225 | 625 | 850 | 1,125 | 1,175 | 1,725 | 1,725 | 4,500 | 3,100 | 2,625 | 2,750 | 2,100 | 1,700 | 1,875 | 1,600 | 1,325 |
| 50 | 1,025 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,125 | 1,175 | 1,700 | 1,700 | 4,100 | 2,875 | 2,425 | 2,600 | 2,050 | 1,675 | 1,875 | 1,600 | 1,325 |
| 25 | 1,000 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,100 | 1,175 | 1,675 | 1,675 | 3,750 | 2,675 | 2,250 | 2,425 | 2,025 | 1,650 | 1,875 | 1,600 | 1,325 |
| 0 | 1,000 | 1,250 | 800 | 1,025 | 975 | 1,225 | 625 | 850 | 1,100 | 1,175 | 1,675 | 1,675 | 3,375 | 2,475 | 2,050 | 2,275 | 1,975 | 1,625 | 1,875 | 1,600 | 1,325 |

HOB_{fs} = 82 m
Low HOB_{min} = 144 m
High HOB_{min} = 326 m
HOB₉₉ = HOB_{fs} + 3.5 PE_h m
HOB₉₈ = HOB_{fs} + 3.0 PE_h m
HOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 9.6c.

CASUALTY and DAMAGE Tables Fighter Aircraft

FOXTROT/20 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-------------------------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
Hwy and
RR
brgs | Severe
dam
float
brgs | 2d ¹ -degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| | | | | | | | | | | | | | | | | | | |
| 1,200 | | | | | | | 2,625 | 650 | | 4,625 | | | 0-10 | | | | 0-750 | |
| 1,150 | | | | | | | 2,650 | 750 | | 4,600 | | | 0-10 | | | | 0-800 | |
| 1,100 | | | | | | | 2,675 | 825 | | 4,600 | | | 0-15 | | | | 0-900 | |
| 1,050 | | | | | | | 2,700 | 875 | | 4,575 | | 0 | 0-20 | | | 0 | 0-950 | |
| 1,000 | | | | | | | 2,700 | 925 | | 4,550 | | 0-5 | 0-25 | | | 0-50 | 0-1,000 | |
| 950 | | | | | | | 2,725 | 975 | | 4,525 | | 0-5 | 0-35 | | | 0-300 | 0-1,050 | |
| 900 | | | | | | | 2,750 | 1,025 | | 4,500 | | 0-5 | 5-45 | | | 0-450 | 50-1,100 | |
| 850 | | | | | | | 2,750 | 1,075 | | 4,475 | | 0-10 | 5-65 | | | 0-550 | 350-1,150 | |
| 800 | | | | 0 | | | 2,775 | 1,100 | | 4,450 | | 0-10 | 5-90 | | | 0-600 | 450-1,150 | |
| 775 | | | | 25 | | | 2,775 | 1,125 | | 4,450 | 0 | 0-10 | 5-110 | | 0 | 0-650 | 500-1,200 | |
| 750 | | | | 75 | | | 2,800 | 1,150 | 0 | 4,425 | 0-5 | 0-15 | 10-140 | | 0-50 | 0-700 | 550-1,200 | |
| 725 | | | | 150 | | | 2,800 | 1,150 | 75 | 4,400 | 0-5 | 0-15 | 10-170 | | 0-200 | 0-700 | 550-1,200 | |
| 700 | | | | 225 | | | 2,800 | 1,175 | 200 | 4,400 | 0-5 | 0-20 | 10-200 | | 0-300 | 0-750 | 600-1,250 | |
| 675 | | | | 275 | | | 2,800 | 1,200 | 275 | 4,375 | 0-5 | 0-25 | 10-250 | | 0-350 | 0-750 | 600-1,250 | |
| 650 | | | | 325 | | | 2,825 | 1,200 | 325 | 4,350 | 0-5 | 0-30 | 15-320 | | 0-400 | 0-800 | 650-1,250 | |
| 625 | 0 | | | 375 | | 0 | 2,825 | 1,225 | 375 | 4,325 | 0-5 | 0-35 | 20-390 | | 0-450 | 0-800 | 700-1,300 | |
| 600 | 75 | | | 425 | | 750 | 2,825 | 1,225 | 425 | 4,325 | 0-5 | 5-40 | 20-480 | | 0-450 | 50-800 | 700-1,300 | |
| 575 | 125 | | | 475 | | 775 | 2,825 | 1,250 | 450 | 4,300 | 0-10 | 5-50 | 25-590 | | 0-500 | 200-850 | 700-1,300 | |
| 550 | 200 | | | 525 | | 775 | 2,825 | 1,250 | 475 | 4,275 | 0-10 | 5-65 | 30-750 | | 0-550 | 250-850 | 750-1,300 | |
| 525 | 250 | | 0 | 550 | | 775 | 2,850 | 1,275 | 500 | 4,250 | 0-10 | 5-85 | 40-990 | | 0-600 | 300-900 | 750-1,350 | |
| 500 | 325 | | 25 | 575 | | 775 | 2,850 | 1,275 | 525 | 4,225 | 0-15 | 5-100 | 50-1,200 | | 0-600 | 350-900 | 800-1,350 | |
| 475 | 425 | 0 | 100 | 600 | | 775 | 2,850 | 1,275 | 550 | 4,200 | 0-20 | 10-150 | 75-1,800 | | 0-600 | 400-900 | 800-1,350 | |
| 450 | 600 | 25 | 150 | 625 | 0 | 800 | 2,850 | 1,300 | 575 | 4,175 | 0-25 | 10-190 | 100-2,280 | | 0-600 | 400-900 | 800-1,350 | |
| 425 | 675 | 75 | 200 | 650 | 550 | 800 | 2,850 | 1,300 | 600 | 4,150 | 0-30 | 10-250 | 120-3,000 | | 0-650 | 450-950 | 800-1,350 | |
| 400 | 700 | 100 | 250 | 675 | 650 | 800 | 2,850 | 1,300 | 600 | 4,125 | 0-40 | 15-330 | 160-3,960 | | 0-650 | 450-950 | 850-1,350 | |
| 375 | 725 | 150 | 275 | 700 | 675 | 800 | 2,875 | 1,325 | 625 | 4,100 | 0-50 | 20-430 | 210-5,160 | | 0-650 | 500-950 | 850-1,400 | |
| 350 | 750 | 200 | 325 | 725 | 675 | 825 | 2,875 | 1,325 | 650 | 4,075 | 5-60 | 25-530 | 260-6,360 | | 50-700 | 500-950 | 850-1,400 | |
| 325 | 775 | 225 | 350 | 725 | 700 | 825 | 2,875 | 1,325 | 650 | 4,050 | 5-75 | 30-660 | 320-7,920 | 0 | 150-700 | 500-950 | 850-1,400 | 0 |
| 300 | 800 | 275 | 350 | 750 | 700 | 825 | 2,875 | 1,325 | 675 | 4,025 | 5-90 | 35-780 | 380-9,360 | 0-5 | 200-700 | 550-1,000 | 850-1,400 | 0-50 |
| 275 | 800 | 325 | 375 | 775 | 700 | 825 | 2,875 | 1,350 | 675 | 4,000 | 5-105 | 40-940 | 460-11,300 | 0-5 | 250-700 | 550-1,000 | 900-1,400 | 0-150 |
| 250 | 825 | 375 | 400 | 775 | 700 | 850 | 2,875 | 1,350 | 675 | 3,950 | 5-125 | 45-1,100 | 530-13,200 | 0-5 | 250-750 | 550-1,000 | 900-1,400 | 0-200 |
| 225 | 850 | 425 | 425 | 800 | 725 | 850 | 2,875 | 1,350 | 700 | 3,925 | 10-150 | 60-1,300 | 630-15,600 | 0-5 | 300-750 | 600-1,000 | 900-1,400 | 0-200 |
| 200 | 850 | 475 | 450 | 825 | 725 | 850 | 2,875 | 1,350 | 700 | 3,900 | 10-200 | 75-1,800 | 870-21,600 | 0-5 | 300-750 | 600-1,000 | 900-1,400 | 0-250 |
| 175 | 875 | 500 | 450 | 825 | 725 | 850 | 2,850 | 1,350 | 725 | 3,875 | 10-250 | 90-2,200 | 1,060-26,400 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-250 |
| 150 | 875 | 500 | 475 | 850 | 725 | 850 | 2,675 | 1,275 | 675 | 3,825 | 15-310 | 120-2,800 | 1,350-33,600 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 125 | 850 | 500 | 475 | 850 | 725 | 850 | 2,500 | 1,200 | 650 | 3,800 | 20-410 | 150-3,700 | 1,780-44,000 | 0-10 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 100 | 850 | 525 | 475 | 850 | 700 | 825 | 2,350 | 1,125 | 600 | 3,775 | 20-500 | 180-4,500 | 2,160-54,000 | 0-15 | 350-750 | 600-1,000 | 900-1,400 | 0-300 |
| 75 | 825 | 500 | 475 | 825 | 675 | 800 | 2,175 | 1,050 | 550 | 3,725 | FALLOUT GOVERNS | | | | | | | |
| 50 | 775 | 500 | 450 | 775 | 750 | 750 | 2,000 | 975 | 525 | 3,700 | | | | | | | | |
| 25 | 700 | 450 | 375 | 725 | 600 | 725 | 1,850 | 900 | 475 | 3,650 | | | | | | | | |
| 0 | 600 | 400 | 325 | 650 | 550 | 650 | 1,675 | 825 | 450 | 3,625 | | | | | | | | |

FTR.
ACFT 1

Figure 9.6c continued.

¹Fighter Aircraft.

CASUALTY and DAMAGE Tables

Fighter Aircraft

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,350 | | 600 | | | | | | | 0 | 125 | 3,750 | 3,750 | 8,575 | 6,450 | 5,600 | 5,225 | 3,100 | 2,350 | 3,750 | 2,000 | 675 |
| 1,300 | | 700 | | | | | | | 900 | 900 | 3,750 | 3,750 | 8,575 | 6,450 | 5,600 | 5,225 | 3,125 | 2,375 | 3,750 | 2,175 | 750 |
| 1,250 | | 800 | | | | | | | 1,125 | 1,125 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,250 | 3,150 | 2,400 | 3,750 | 2,375 | 825 |
| 1,200 | 0 | 875 | | 0 | | | | | 1,300 | 1,300 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,250 | 3,175 | 2,425 | 3,750 | 2,500 | 925 |
| 1,150 | 250 | 925 | | 250 | 0 | 800 | | | 1,425 | 1,425 | 3,750 | 3,750 | 8,600 | 6,475 | 5,625 | 5,275 | 3,175 | 2,450 | 3,750 | 2,550 | 975 |
| 1,100 | 425 | 975 | 0 | 425 | 250 | 875 | | | 2,125 | 2,125 | 3,700 | 3,700 | 8,600 | 6,500 | 5,650 | 5,275 | 3,200 | 2,475 | 3,700 | 2,525 | 1,025 |
| 1,050 | 550 | 1,025 | 150 | 550 | 400 | 950 | | | 2,150 | 2,150 | 3,700 | 3,700 | 8,625 | 6,500 | 5,650 | 5,300 | 3,225 | 2,500 | 3,650 | 2,500 | 1,125 |
| 1,000 | 625 | 1,075 | 350 | 625 | 525 | 1,000 | | 0 | 2,175 | 2,175 | 3,650 | 3,650 | 8,625 | 6,500 | 5,675 | 5,300 | 3,225 | 2,500 | 3,600 | 2,475 | 1,225 |
| 950 | 700 | 1,125 | 475 | 700 | 600 | 1,050 | | 300 | 2,175 | 2,175 | 3,600 | 3,600 | 8,625 | 6,500 | 5,675 | 5,300 | 3,250 | 2,525 | 3,550 | 2,425 | 1,375 |
| 900 | 1,350 | 1,350 | 550 | 775 | 675 | 1,075 | | 425 | 2,150 | 2,150 | 3,500 | 3,500 | 8,625 | 6,525 | 5,675 | 5,325 | 3,250 | 2,550 | 3,475 | 2,400 | 1,450 |
| 850 | 1,575 | 1,575 | 650 | 825 | 750 | 1,125 | | 525 | 2,125 | 2,125 | 3,400 | 3,400 | 8,650 | 6,525 | 5,675 | 5,325 | 3,275 | 2,550 | 3,400 | 2,350 | 1,475 |
| 800 | 1,625 | 1,625 | 700 | 875 | 800 | 1,150 | | 600 | 2,100 | 2,100 | 3,300 | 3,300 | 8,650 | 6,525 | 5,700 | 5,325 | 3,300 | 2,575 | 3,325 | 2,300 | 1,450 |
| 775 | 1,625 | 1,625 | 725 | 900 | 825 | 1,175 | 0 | 625 | 2,100 | 2,100 | 3,250 | 3,250 | 8,650 | 6,525 | 5,700 | 5,325 | 3,300 | 2,575 | 3,300 | 2,275 | 1,450 |
| 750 | 1,625 | 1,625 | 750 | 925 | 850 | 1,200 | 125 | 650 | 2,075 | 2,075 | 3,250 | 3,250 | 8,650 | 6,525 | 5,700 | 5,350 | 3,300 | 2,600 | 3,250 | 2,250 | 1,425 |
| 725 | 1,650 | 1,650 | 775 | 925 | 850 | 1,200 | 225 | 675 | 2,050 | 2,050 | 3,200 | 3,200 | 8,650 | 6,525 | 5,700 | 5,350 | 3,300 | 2,600 | 3,225 | 2,225 | 1,425 |
| 700 | 1,650 | 1,650 | 800 | 950 | 875 | 1,225 | 300 | 700 | 2,050 | 2,050 | 3,150 | 3,150 | 8,650 | 6,525 | 5,700 | 5,350 | 3,325 | 2,600 | 3,175 | 2,175 | 1,400 |
| 675 | 1,650 | 1,650 | 825 | 975 | 900 | 1,250 | 350 | 725 | 2,025 | 2,025 | 3,100 | 3,100 | 8,650 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,125 | 2,150 | 1,375 |
| 650 | 1,650 | 1,650 | 850 | 1,000 | 925 | 1,250 | 400 | 750 | 2,000 | 2,000 | 3,050 | 3,050 | 8,650 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,075 | 2,125 | 1,350 |
| 625 | 1,650 | 1,650 | 850 | 1,000 | 925 | 1,250 | 425 | 775 | 1,975 | 1,975 | 3,000 | 3,000 | 8,675 | 6,550 | 5,725 | 5,350 | 3,325 | 2,625 | 3,050 | 2,100 | 1,375 |
| 600 | 1,650 | 1,650 | 875 | 1,025 | 950 | 1,275 | 475 | 800 | 1,950 | 1,950 | 3,000 | 3,000 | 8,675 | 6,550 | 5,725 | 5,375 | 3,325 | 2,625 | 3,000 | 2,100 | 1,375 |
| 575 | 1,650 | 1,650 | 900 | 1,025 | 975 | 1,275 | 500 | 825 | 1,925 | 1,925 | 2,950 | 2,950 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,950 | 2,075 | 1,400 |
| 550 | 1,650 | 1,650 | 900 | 1,050 | 975 | 1,300 | 525 | 825 | 1,900 | 1,900 | 2,900 | 2,900 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,900 | 2,050 | 1,400 |
| 525 | 1,650 | 1,650 | 925 | 1,050 | 1,000 | 1,300 | 550 | 850 | 1,875 | 1,875 | 2,900 | 2,900 | 8,675 | 6,550 | 5,725 | 5,375 | 3,350 | 2,650 | 2,850 | 2,025 | 1,425 |
| 500 | 1,650 | 1,650 | 950 | 1,075 | 1,000 | 1,325 | 575 | 850 | 1,850 | 1,850 | 2,850 | 2,850 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,825 | 2,025 | 1,425 |
| 475 | 1,650 | 1,650 | 950 | 1,075 | 1,025 | 1,325 | 600 | 875 | 1,825 | 1,825 | 2,800 | 2,800 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,775 | 2,000 | 1,425 |
| 450 | 1,650 | 1,650 | 975 | 1,100 | 1,025 | 1,325 | 625 | 875 | 1,800 | 1,800 | 2,800 | 2,800 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,650 | 2,750 | 1,975 | 1,425 |
| 425 | 1,650 | 1,650 | 975 | 1,100 | 1,050 | 1,350 | 625 | 900 | 1,775 | 1,775 | 2,750 | 2,750 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,675 | 2,725 | 1,950 | 1,450 |
| 400 | 1,650 | 1,650 | 975 | 1,125 | 1,050 | 1,350 | 650 | 900 | 1,750 | 1,750 | 2,700 | 2,700 | 8,675 | 6,575 | 5,725 | 5,375 | 3,350 | 2,675 | 2,700 | 1,950 | 1,450 |
| 375 | 1,650 | 1,650 | 1,000 | 1,125 | 1,050 | 1,350 | 650 | 925 | 1,725 | 1,725 | 2,700 | 2,700 | 8,675 | 6,575 | 5,800 | 5,375 | 3,350 | 2,675 | 2,650 | 1,925 | 1,450 |
| 350 | 1,650 | 1,650 | 1,000 | 1,125 | 1,075 | 1,375 | 675 | 925 | 1,700 | 1,700 | 2,650 | 2,650 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,625 | 1,900 | 1,475 |
| 325 | 1,650 | 1,650 | 1,025 | 1,150 | 1,075 | 1,375 | 675 | 950 | 1,675 | 1,675 | 2,600 | 2,600 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,600 | 1,900 | 1,475 |
| 300 | 1,650 | 1,650 | 1,025 | 1,150 | 1,075 | 1,375 | 700 | 950 | 1,675 | 1,675 | 2,600 | 2,600 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,575 | 1,875 | 1,475 |
| 275 | 1,650 | 1,650 | 1,025 | 1,150 | 1,100 | 1,375 | 700 | 950 | 1,650 | 1,650 | 2,550 | 2,550 | 8,675 | 6,575 | 5,800 | 5,375 | 3,375 | 2,675 | 2,550 | 1,875 | 1,475 |
| 250 | 1,650 | 1,650 | 1,025 | 1,150 | 1,100 | 1,400 | 725 | 975 | 1,625 | 1,625 | 2,550 | 2,550 | 8,600 | 6,500 | 5,675 | 5,350 | 3,300 | 2,650 | 2,525 | 1,850 | 1,475 |
| 225 | 1,625 | 1,625 | 1,050 | 1,175 | 1,100 | 1,400 | 725 | 975 | 1,625 | 1,625 | 2,500 | 2,500 | 8,000 | 6,225 | 5,425 | 5,100 | 3,200 | 2,575 | 2,500 | 1,850 | 1,500 |
| 200 | 1,625 | 1,625 | 1,050 | 1,175 | 1,100 | 1,400 | 725 | 975 | 1,600 | 1,600 | 2,500 | 2,500 | 7,750 | 5,950 | 5,175 | 4,875 | 3,100 | 2,500 | 2,475 | 1,825 | 1,500 |
| 175 | 1,600 | 1,600 | 1,050 | 1,175 | 1,100 | 1,400 | 750 | 975 | 1,600 | 1,600 | 2,450 | 2,450 | 7,500 | 5,675 | 4,925 | 4,650 | 2,975 | 2,400 | 2,450 | 1,825 | 1,500 |
| 150 | 1,575 | 1,575 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 975 | 1,575 | 1,575 | 2,450 | 2,450 | 7,100 | 5,400 | 4,700 | 4,425 | 2,875 | 2,325 | 2,425 | 1,800 | 1,500 |
| 125 | 1,550 | 1,550 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 975 | 1,550 | 1,550 | 2,400 | 2,400 | 6,750 | 5,100 | 4,450 | 4,200 | 2,775 | 2,250 | 2,400 | 1,800 | 1,500 |
| 100 | 1,525 | 1,525 | 1,050 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,550 | 1,550 | 2,400 | 2,400 | 6,400 | 4,825 | 4,200 | 3,975 | 2,675 | 2,175 | 2,375 | 1,800 | 1,500 |
| 75 | 1,475 | 1,475 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,525 | 1,525 | 2,350 | 2,350 | 6,050 | 4,550 | 3,950 | 3,725 | 2,550 | 2,100 | 2,350 | 1,800 | 1,500 |
| 50 | 1,425 | 1,425 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,525 | 1,525 | 2,300 | 2,300 | 5,600 | 4,275 | 3,700 | 3,500 | 2,450 | 2,025 | 2,350 | 1,800 | 1,500 |
| 25 | 1,350 | 1,350 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,500 | 1,500 | 2,300 | 2,300 | 5,300 | 4,025 | 3,475 | 3,300 | 2,350 | 1,950 | 2,325 | 1,800 | 1,500 |
| 0 | 1,300 | 1,300 | 1,075 | 1,175 | 1,125 | 1,400 | 750 | 1,000 | 1,500 | 1,500 | 2,300 | 2,300 | 4,850 | 3,750 | 3,250 | 3,100 | 2,250 | 1,875 | 2,300 | 1,800 | 1,500 |

HOB₁₈ = 111 mLow HOB_{min} = 196 mHigh HOB_{max} = 442 mHOB₉₉ = HOB₁₈ + 3.5 PE_h mHOB₉₈ = HOB₁₈ + 3.0 PE_h mHOB₉₀ = HOB₁₈ + 1.9 PE_h m

Figure 9 6d.

CASUALTY and DAMAGE Tables Fighter Aircraft

GOLF/50 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|---------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,350 | | | | | | | 3,700 | 1,550 | | 6,175 | | | 0-10 | | | | 0-800 | |
| 1,300 | | | | | | | 3,700 | 1,600 | | 6,150 | | | 0-10 | | | | 0-850 | |
| 1,250 | | | | | | | 3,725 | 1,625 | | 6,125 | | | 0-15 | | | | 0-950 | |
| 1,200 | | | | | | | 3,750 | 1,675 | 0 | 6,100 | | 0 | 0-15 | | | 0 | 0-1,000 | |
| 1,150 | | | | | | | 3,750 | 1,700 | 300 | 6,075 | | 0-5 | 0-25 | | | 0-50 | 0-1,050 | |
| 1,100 | | | | 0 | | | 3,775 | 1,750 | 450 | 6,050 | | 0-5 | 0-30 | | | 0-350 | 0-1,100 | |
| 1,050 | | | | 25 | | | 3,775 | 1,775 | 550 | 6,025 | | 0-5 | 5-40 | | | 0-500 | 50-1,150 | |
| 1,000 | | | | 175 | | | 3,800 | 1,800 | 650 | 6,000 | | 0-5 | 5-60 | | | 0-600 | 350-1,200 | |
| 950 | | | | 300 | | | 3,825 | 1,825 | 725 | 5,950 | | 0-10 | 5-80 | | | 0-650 | 500-1,250 | |
| 900 | | | | 425 | | 0 | 3,825 | 1,850 | 775 | 5,925 | | 0-10 | 5-110 | | | 0-750 | 550-1,300 | |
| 850 | 0 | | | 550 | | 1,175 | 3,825 | 1,875 | 825 | 5,875 | 0 | 0-15 | 10-160 | | 0 | 0-800 | 650-1,300 | |
| 800 | 150 | | | 650 | | 1,225 | 3,850 | 1,900 | 875 | 5,850 | 0-5 | 0-20 | 10-230 | | 0-50 | 0-850 | 700-1,350 | |
| 775 | 225 | | | 700 | | 1,225 | 3,850 | 1,900 | 900 | 5,825 | 0-5 | 0-25 | 15-270 | | 0-200 | 0-850 | 750-1,350 | |
| 750 | 275 | | | 725 | 0 | 1,225 | 3,850 | 1,925 | 925 | 5,800 | 0-5 | 0-30 | 15-330 | | 0-300 | 0-900 | 750-1,400 | |
| 725 | 350 | | | 775 | 800 | 1,225 | 3,875 | 1,925 | 950 | 5,775 | 0-5 | 0-35 | 20-410 | | 0-350 | 0-900 | 800-1,400 | |
| 700 | 400 | | 0 | 800 | 875 | 1,225 | 3,875 | 1,925 | 950 | 5,750 | 0-5 | 5-45 | 20-500 | | 0-400 | 50-950 | 800-1,400 | |
| 675 | 475 | | 50 | 850 | 900 | 1,225 | 3,875 | 1,950 | 975 | 5,725 | 0-10 | 5-55 | 25-620 | | 0-450 | 200-950 | 850-1,400 | |
| 650 | 600 | 0 | 125 | 875 | 900 | 1,225 | 3,875 | 1,950 | 975 | 5,700 | 0-10 | 5-65 | 35-780 | | 0-500 | 300-950 | 850-1,450 | |
| 625 | 825 | 25 | 175 | 900 | 925 | 1,250 | 3,875 | 1,975 | 1,025 | 5,675 | 0-10 | 5-80 | 40-960 | | 0-500 | 350-1,000 | 850-1,450 | |
| 600 | 900 | 50 | 250 | 925 | 925 | 1,250 | 3,875 | 1,975 | 1,025 | 5,650 | 0-15 | 5-100 | 50-1,200 | | 0-550 | 400-1,000 | 900-1,450 | |
| 575 | 950 | 100 | 300 | 950 | 925 | 1,250 | 3,900 | 1,975 | 1,050 | 5,625 | 0-15 | 5-125 | 60-1,470 | | 0-600 | 400-1,000 | 900-1,450 | |
| 550 | 975 | 150 | 350 | 975 | 950 | 1,250 | 3,900 | 1,975 | 1,050 | 5,600 | 0-20 | 10-155 | 75-1,860 | | 0-600 | 450-1,050 | 900-1,450 | |
| 525 | 1,000 | 200 | 375 | 1,000 | 950 | 1,250 | 3,900 | 2,000 | 1,075 | 5,575 | 0-25 | 10-205 | 100-2,460 | | 0-600 | 450-1,050 | 950-1,500 | |
| 500 | 1,025 | 225 | 425 | 1,000 | 950 | 1,250 | 3,900 | 2,000 | 1,075 | 5,550 | 5-30 | 10-250 | 120-3,000 | | 50-650 | 500-1,050 | 950-1,500 | |
| 475 | 1,075 | 275 | 450 | 1,025 | 950 | 1,250 | 3,900 | 2,000 | 1,100 | 5,525 | 5-45 | 15-375 | 180-4,500 | 0 | 150-650 | 550-1,050 | 950-1,500 | 0 |
| 450 | 1,100 | 325 | 475 | 1,050 | 950 | 1,250 | 3,900 | 2,000 | 1,100 | 5,500 | 5-55 | 20-475 | 230-5,700 | 0-5 | 250-700 | 550-1,100 | 1,000-1,500 | 0-50 |
| 425 | 1,100 | 350 | 500 | 1,075 | 975 | 1,250 | 3,900 | 2,025 | 1,100 | 5,475 | 5-70 | 25-625 | 300-7,500 | 0-5 | 300-700 | 600-1,100 | 1,000-1,500 | 0-150 |
| 400 | 1,125 | 400 | 525 | 1,100 | 975 | 1,250 | 3,900 | 2,025 | 1,125 | 5,450 | 5-90 | 35-825 | 400-9,900 | 0-5 | 300-700 | 600-1,100 | 1,000-1,500 | 0-200 |
| 375 | 1,150 | 450 | 550 | 1,100 | 1,000 | 1,250 | 3,900 | 2,025 | 1,125 | 5,425 | 5-120 | 45-1,080 | 520-12,900 | 0-5 | 350-750 | 600-1,100 | 1,000-1,550 | 0-250 |
| 350 | 1,175 | 500 | 575 | 1,125 | 1,000 | 1,250 | 3,925 | 2,025 | 1,125 | 5,400 | 10-150 | 55-1,330 | 640-15,900 | 0-5 | 400-750 | 650-1,100 | 1,000-1,550 | 0-300 |
| 325 | 1,200 | 575 | 600 | 1,150 | 1,000 | 1,250 | 3,925 | 2,025 | 1,150 | 5,350 | 10-190 | 70-1,650 | 800-19,800 | 0-5 | 400-750 | 650-1,150 | 1,000-1,550 | 0-380 |
| 300 | 1,225 | 650 | 600 | 1,175 | 1,025 | 1,250 | 3,925 | 2,050 | 1,150 | 5,325 | 10-215 | 80-1,950 | 940-23,400 | 0-5 | 400-750 | 650-1,150 | 1,050-1,550 | 0-350 |
| 275 | 1,225 | 675 | 625 | 1,175 | 1,025 | 1,250 | 3,925 | 2,050 | 1,150 | 5,300 | 15-260 | 100-2,350 | 1,130-28,200 | 0-10 | 450-800 | 650-1,150 | 1,050-1,550 | 0-400 |
| 250 | 1,250 | 700 | 650 | 1,200 | 1,025 | 1,250 | 3,850 | 2,025 | 1,150 | 5,275 | 15-310 | 110-2,750 | 1,320-33,000 | 0-10 | 450-800 | 700-1,150 | 1,050-1,550 | 0-400 |
| 225 | 1,250 | 725 | 650 | 1,200 | 1,050 | 1,250 | 3,700 | 1,950 | 1,125 | 5,225 | 15-360 | 130-3,250 | 1,560-39,000 | 0-10 | 450-800 | 700-1,150 | 1,050-1,550 | 0-400 |
| 200 | 1,250 | 725 | 675 | 1,225 | 1,050 | 1,250 | 3,550 | 1,850 | 1,075 | 5,200 | 20-500 | 180-4,500 | 2,160-54,000 | 0-15 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 175 | 1,250 | 750 | 675 | 1,225 | 1,075 | 1,250 | 3,400 | 1,775 | 1,025 | 5,175 | 25-610 | 220-5,500 | 2,640-66,000 | 0-15 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 150 | 1,225 | 750 | 700 | 1,225 | 1,075 | 1,225 | 3,275 | 1,700 | 975 | 5,125 | 35-770 | 280-7,000 | 3,360-84,000 | 0-20 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 125 | 1,225 | 750 | 700 | 1,200 | 1,050 | 1,225 | 3,125 | 1,600 | 950 | 5,100 | 45-1,020 | 370-9,250 | 4,440-111,000 | 5-25 | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 |
| 100 | 1,200 | 725 | 675 | 1,175 | 1,025 | 1,200 | 2,975 | 1,525 | 900 | 5,050 | FALLOUT GOVERNS | | | | | | | |
| 75 | 1,150 | 725 | 650 | 1,150 | 975 | 1,150 | 2,825 | 1,450 | 850 | 5,025 | | | | | | | | |
| 50 | 1,075 | 675 | 600 | 1,100 | 925 | 1,125 | 2,675 | 1,375 | 800 | 5,000 | | | | | | | | |
| 25 | 975 | 650 | 525 | 1,025 | 875 | 1,075 | 2,525 | 1,275 | 750 | 4,950 | | | | | | | | |
| 0 | 825 | 550 | 450 | 950 | 800 | 975 | 2,375 | 1,200 | 725 | 4,925 | | | | | | | | |

FTR
ACFT 1

Figure 9.6d continued.

CASUALTY and DAMAGE Tables
Fighter Aircraft

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in fromehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,350 | | 975 | 0 | 0 | | 800 | | | 2,650 | 2,650 | 4,600 | 4,600 | 11,325 | 8,900 | 7,575 | 7,100 | 4,475 | 3,400 | 4,625 | 3,150 | 1,350 |
| 1,300 | | 1,025 | 125 | 125 | 0 | 875 | | | 2,700 | 2,700 | 4,550 | 4,550 | 11,325 | 8,900 | 7,600 | 7,100 | 4,475 | 3,425 | 4,575 | 3,125 | 1,475 |
| 1,250 | | 1,100 | 250 | 375 | 200 | 950 | | | 2,700 | 2,700 | 4,500 | 4,500 | 11,350 | 8,900 | 7,600 | 7,125 | 4,500 | 3,425 | 4,525 | 3,100 | 1,600 |
| 1,200 | | 1,150 | 375 | 500 | 400 | 1,000 | | | 2,700 | 2,700 | 4,450 | 4,450 | 11,350 | 8,925 | 7,600 | 7,125 | 4,500 | 3,450 | 4,475 | 3,075 | 1,725 |
| 1,150 | 0 | 1,200 | 475 | 625 | 525 | 1,075 | | 0 | 2,675 | 2,675 | 4,400 | 4,400 | 11,350 | 8,925 | 7,625 | 7,125 | 4,525 | 3,475 | 4,400 | 3,025 | 1,825 |
| 1,100 | 1,950 | 1,950 | 550 | 700 | 625 | 1,125 | | 175 | 2,650 | 2,650 | 4,300 | 4,300 | 11,350 | 8,925 | 7,625 | 7,125 | 4,525 | 3,475 | 4,325 | 2,975 | 1,875 |
| 1,050 | 2,100 | 2,100 | 625 | 775 | 700 | 1,175 | | 375 | 2,600 | 2,600 | 4,250 | 4,250 | 11,350 | 8,950 | 7,625 | 7,150 | 4,550 | 3,500 | 4,250 | 2,925 | 1,850 |
| 1,000 | 2,150 | 2,150 | 675 | 825 | 775 | 1,200 | | 500 | 2,600 | 2,600 | 4,150 | 4,150 | 11,350 | 8,950 | 7,625 | 7,150 | 4,550 | 3,525 | 4,175 | 2,875 | 1,825 |
| 950 | 2,175 | 2,175 | 725 | 900 | 825 | 1,250 | | 575 | 2,575 | 2,575 | 4,050 | 4,050 | 11,350 | 8,950 | 7,650 | 7,150 | 4,575 | 3,525 | 4,100 | 2,825 | 1,800 |
| 900 | 2,175 | 2,175 | 775 | 950 | 900 | 1,275 | 0 | 650 | 2,525 | 2,525 | 4,000 | 4,000 | 11,375 | 8,950 | 7,650 | 7,175 | 4,575 | 3,550 | 4,025 | 2,775 | 1,775 |
| 850 | 2,175 | 2,175 | 800 | 1,000 | 950 | 1,325 | 175 | 725 | 2,475 | 2,475 | 3,900 | 3,900 | 11,375 | 8,950 | 7,650 | 7,175 | 4,575 | 3,550 | 3,950 | 2,725 | 1,725 |
| 800 | 2,175 | 2,175 | 825 | 1,025 | 975 | 1,350 | 350 | 775 | 2,450 | 2,450 | 3,800 | 3,800 | 11,375 | 8,950 | 7,650 | 7,175 | 4,600 | 3,575 | 3,850 | 2,675 | 1,675 |
| 775 | 2,175 | 2,175 | 825 | 1,050 | 1,000 | 1,350 | 400 | 800 | 2,425 | 2,425 | 3,800 | 3,800 | 11,375 | 8,975 | 7,650 | 7,175 | 4,600 | 3,575 | 3,800 | 2,650 | 1,650 |
| 750 | 2,175 | 2,175 | 825 | 1,075 | 1,025 | 1,375 | 450 | 825 | 2,400 | 2,400 | 3,750 | 3,750 | 11,375 | 8,975 | 7,675 | 7,175 | 4,600 | 3,575 | 3,775 | 2,625 | 1,625 |
| 725 | 2,175 | 2,175 | 850 | 1,075 | 1,050 | 1,400 | 475 | 850 | 2,375 | 2,375 | 3,700 | 3,700 | 11,375 | 8,975 | 7,675 | 7,175 | 4,600 | 3,575 | 3,725 | 2,600 | 1,600 |
| 700 | 2,175 | 2,175 | 850 | 1,100 | 1,050 | 1,400 | 525 | 875 | 2,350 | 2,350 | 3,650 | 3,650 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,675 | 2,600 | 1,575 |
| 675 | 2,175 | 2,175 | 850 | 1,100 | 1,075 | 1,425 | 550 | 875 | 2,325 | 2,325 | 3,650 | 3,650 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,625 | 2,575 | 1,500 |
| 650 | 2,175 | 2,175 | 850 | 1,125 | 1,075 | 1,425 | 575 | 900 | 2,300 | 2,300 | 3,600 | 3,600 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,625 | 3,450 | 2,475 | 1,550 |
| 625 | 2,175 | 2,175 | 850 | 1,150 | 1,100 | 1,450 | 600 | 925 | 2,275 | 2,275 | 3,550 | 3,550 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,550 | 2,525 | 1,525 |
| 600 | 2,175 | 2,175 | 850 | 1,150 | 1,125 | 1,450 | 625 | 950 | 2,275 | 2,275 | 3,550 | 3,550 | 11,400 | 8,975 | 7,675 | 7,200 | 4,625 | 3,600 | 3,525 | 2,525 | 1,550 |
| 575 | 2,175 | 2,175 | 875 | 1,175 | 1,125 | 1,450 | 650 | 950 | 2,250 | 2,250 | 3,500 | 3,500 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,475 | 2,500 | 1,550 |
| 550 | 2,175 | 2,175 | 900 | 1,175 | 1,150 | 1,475 | 675 | 975 | 2,225 | 2,225 | 3,450 | 3,450 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,450 | 2,475 | 1,550 |
| 525 | 2,175 | 2,175 | 900 | 1,200 | 1,150 | 1,475 | 700 | 975 | 2,200 | 2,200 | 3,450 | 3,450 | 11,400 | 9,000 | 7,675 | 7,200 | 4,625 | 3,625 | 3,425 | 2,475 | 1,575 |
| 500 | 2,175 | 2,175 | 925 | 1,200 | 1,150 | 1,475 | 725 | 1,000 | 2,175 | 2,175 | 3,400 | 3,400 | 11,400 | 9,000 | 7,675 | 7,200 | 4,650 | 3,625 | 3,375 | 2,450 | 1,575 |
| 475 | 2,175 | 2,175 | 925 | 1,225 | 1,175 | 1,500 | 725 | 1,000 | 2,175 | 2,175 | 3,350 | 3,350 | 11,400 | 9,000 | 7,675 | 7,200 | 4,650 | 3,625 | 3,350 | 2,425 | 1,600 |
| 450 | 2,175 | 2,175 | 950 | 1,225 | 1,175 | 1,500 | 750 | 1,025 | 2,150 | 2,150 | 3,350 | 3,350 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,325 | 2,425 | 1,600 |
| 425 | 2,175 | 2,175 | 950 | 1,225 | 1,200 | 1,500 | 750 | 1,025 | 2,125 | 2,125 | 3,300 | 3,300 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,300 | 2,400 | 1,600 |
| 400 | 2,175 | 2,175 | 975 | 1,250 | 1,200 | 1,525 | 775 | 1,050 | 2,100 | 2,100 | 3,250 | 3,250 | 11,400 | 9,000 | 7,675 | 7,225 | 4,650 | 3,625 | 3,275 | 2,375 | 1,600 |
| 375 | 2,175 | 2,175 | 975 | 1,250 | 1,200 | 1,525 | 775 | 1,050 | 2,075 | 2,075 | 3,250 | 3,250 | 11,400 | 9,000 | 7,700 | 7,225 | 4,650 | 3,625 | 3,250 | 2,375 | 1,625 |
| 350 | 2,175 | 2,175 | 975 | 1,250 | 1,225 | 1,525 | 800 | 1,050 | 2,075 | 2,075 | 3,200 | 3,200 | 11,400 | 9,000 | 7,700 | 7,225 | 4,650 | 3,650 | 3,225 | 2,350 | 1,625 |
| 325 | 2,175 | 2,175 | 1,000 | 1,250 | 1,225 | 1,525 | 800 | 1,075 | 2,050 | 2,050 | 3,200 | 3,200 | 11,200 | 8,650 | 7,525 | 7,050 | 4,550 | 3,550 | 3,200 | 2,350 | 1,625 |
| 300 | 2,150 | 2,150 | 1,000 | 1,275 | 1,225 | 1,550 | 825 | 1,075 | 2,050 | 2,050 | 3,150 | 3,150 | 10,850 | 8,400 | 7,275 | 6,825 | 4,400 | 3,450 | 3,150 | 2,325 | 1,625 |
| 275 | 2,150 | 2,150 | 1,000 | 1,275 | 1,225 | 1,550 | 825 | 1,075 | 2,025 | 2,025 | 3,150 | 3,150 | 10,400 | 8,125 | 7,025 | 6,600 | 4,275 | 3,350 | 3,125 | 2,325 | 1,625 |
| 250 | 2,125 | 2,125 | 1,025 | 1,275 | 1,250 | 1,550 | 825 | 1,075 | 2,025 | 2,025 | 3,100 | 3,100 | 10,100 | 7,850 | 6,775 | 6,375 | 4,125 | 3,250 | 3,125 | 2,300 | 1,650 |
| 225 | 2,100 | 2,100 | 1,025 | 1,275 | 1,250 | 1,550 | 850 | 1,100 | 2,000 | 2,000 | 3,100 | 3,100 | 9,800 | 7,550 | 6,550 | 6,150 | 3,975 | 3,125 | 3,100 | 2,300 | 1,650 |
| 200 | 2,100 | 2,100 | 1,025 | 1,275 | 1,250 | 1,550 | 850 | 1,100 | 2,000 | 2,000 | 3,050 | 3,050 | 9,400 | 7,250 | 6,300 | 5,925 | 3,825 | 3,025 | 3,075 | 2,275 | 1,650 |
| 175 | 2,075 | 2,075 | 1,025 | 1,300 | 1,250 | 1,550 | 850 | 1,100 | 1,975 | 1,975 | 3,050 | 3,050 | 9,050 | 6,950 | 6,050 | 5,700 | 3,675 | 2,900 | 3,050 | 2,275 | 1,650 |
| 150 | 2,025 | 2,025 | 1,025 | 1,300 | 1,250 | 1,550 | 850 | 1,100 | 1,950 | 1,950 | 3,000 | 3,000 | 8,700 | 6,650 | 5,800 | 5,475 | 3,525 | 2,800 | 3,025 | 2,250 | 1,650 |
| 125 | 2,000 | 2,000 | 1,050 | 1,300 | 1,250 | 1,575 | 875 | 1,100 | 1,925 | 1,925 | 3,000 | 3,000 | 8,350 | 6,375 | 5,550 | 5,225 | 3,375 | 2,700 | 3,000 | 2,250 | 1,650 |
| 100 | 1,950 | 1,950 | 1,050 | 1,300 | 1,250 | 1,575 | 875 | 1,100 | 1,925 | 1,925 | 2,950 | 2,950 | 7,975 | 6,100 | 5,300 | 5,000 | 3,250 | 2,600 | 2,975 | 2,225 | 1,650 |
| 75 | 1,900 | 1,900 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,100 | 1,900 | 1,900 | 2,950 | 2,950 | 7,600 | 5,825 | 5,050 | 4,750 | 3,125 | 2,500 | 2,950 | 2,225 | 1,650 |
| 50 | 1,850 | 1,850 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,900 | 1,900 | 2,900 | 2,900 | 7,250 | 5,550 | 4,825 | 4,525 | 2,950 | 2,375 | 2,950 | 2,225 | 1,650 |
| 25 | 1,775 | 1,775 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,875 | 1,875 | 2,900 | 2,900 | 6,825 | 5,275 | 4,600 | 4,325 | 2,825 | 2,250 | 2,925 | 2,200 | 1,650 |
| 0 | 1,700 | 1,700 | 1,050 | 1,300 | 1,275 | 1,575 | 875 | 1,125 | 1,875 | 1,875 | 2,900 | 2,900 | 6,400 | 5,000 | 4,350 | 4,125 | 2,700 | 2,150 | 2,900 | 2,200 | 1,650 |

HOB_{1s} = 140 mLow HOB_{min} = 246 mHigh HOB_{min} = 557 mHOB₉₉ = HOB_{1s} + 3.5 PE_h mHOB₉₈ = HOB_{1s} + 3.0 PE_h mHOB₉₀ = HOB_{1s} + 1.9 PE_h m

Figure 9.6e.

CASUALTY and DAMAGE Tables Fighter Aircraft

HOTEL/100 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|---------------|------------|-----------------|------------|-------------|------------|--|
| HOB | Mod
dam
wheeled
vehs | Mod
Dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced Contamination | | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV | |
| 1,350 | | | | 0 | | | 5,500 | 2,425 | 725 | 7,600 | | | 0-15 | | | | 0-950 | | |
| 1,300 | | | | 100 | | | 5,525 | 2,450 | 825 | 7,575 | | 0 | 0-20 | | | 0 | 0-1,050 | | |
| 1,250 | | | | 250 | | | 5,525 | 2,475 | 900 | 7,550 | | 0-5 | 0-25 | | | 0-50 | 0-1,100 | | |
| 1,200 | | | | 400 | | 0 | 5,550 | 2,500 | 950 | 7,500 | | 0-5 | 0-30 | | | 0-400 | 0-1,150 | | |
| 1,150 | | | | 525 | | 1,550 | 5,550 | 2,525 | 1,025 | 7,475 | | 0-5 | 5-45 | | | 0-550 | 50-1,200 | | |
| 1,100 | 0 | | | 650 | | 1,650 | 5,550 | 2,550 | 1,075 | 7,425 | | 0-5 | 5-60 | | | 0-600 | 350-1,250 | | |
| 1,050 | 50 | | | 775 | | 1,675 | 5,575 | 2,575 | 1,125 | 7,400 | | 0-10 | 5-80 | | | 0-700 | 500-1,300 | | |
| 1,000 | 200 | | | 875 | | 1,675 | 5,575 | 2,600 | 1,175 | 7,350 | | 0-10 | 5-120 | | | 0-800 | 600-1,350 | | |
| 950 | 350 | | | 950 | 0 | 1,675 | 5,600 | 2,625 | 1,200 | 7,325 | 0 | 0-15 | 10-160 | | 0 | 0-850 | 650-1,400 | | |
| 900 | 475 | | 0 | 1,050 | 1,175 | 1,675 | 5,600 | 2,625 | 1,250 | 7,275 | 0-5 | 0-20 | 10-220 | | 0-50 | 0-900 | 750-1,400 | | |
| 850 | 650 | | 75 | 1,125 | 1,200 | 1,675 | 5,600 | 2,650 | 1,275 | 7,225 | 0-5 | 0-30 | 15-320 | | 0-350 | 0-950 | 800-1,450 | | |
| 800 | 950 | 0 | 200 | 1,175 | 1,225 | 1,675 | 5,625 | 2,650 | 1,300 | 7,175 | 0-5 | 5-40 | 20-450 | | 0-450 | 50-1,000 | 850-1,450 | | |
| 775 | 1,150 | 25 | 275 | 1,200 | 1,250 | 1,675 | 5,625 | 2,675 | 1,325 | 7,150 | 0-5 | 5-45 | 25-530 | | 0-500 | 200-1,000 | 850-1,500 | | |
| 750 | 1,200 | 75 | 325 | 1,225 | 1,250 | 1,675 | 5,625 | 2,675 | 1,350 | 7,125 | 0-10 | 5-55 | 30-660 | | 0-550 | 300-1,050 | 900-1,500 | | |
| 725 | 1,250 | 125 | 400 | 1,250 | 1,250 | 1,675 | 5,625 | 2,675 | 1,350 | 7,100 | 0-10 | 5-70 | 35-810 | | 0-550 | 350-1,050 | 900-1,500 | | |
| 700 | 1,300 | 175 | 450 | 1,275 | 1,275 | 1,675 | 5,625 | 2,700 | 1,375 | 7,075 | 0-10 | 5-90 | 40-990 | | 0-600 | 400-1,050 | 950-1,500 | | |
| 675 | 1,325 | 225 | 475 | 1,300 | 1,275 | 1,675 | 5,625 | 2,700 | 1,375 | 7,050 | 0-15 | 5-110 | 50-1,230 | | 0-600 | 450-1,100 | 950-1,550 | | |
| 650 | 1,350 | 275 | 525 | 1,325 | 1,275 | 1,675 | 5,625 | 2,700 | 1,400 | 7,025 | 0-15 | 10-130 | 65-1,560 | | 0-650 | 500-1,100 | 950-1,550 | | |
| 625 | 1,375 | 325 | 575 | 1,325 | 1,275 | 1,675 | 5,625 | 2,700 | 1,400 | 7,000 | 0-20 | 10-160 | 80-1,920 | | 0-700 | 500-1,100 | 1,000-1,550 | | |
| 600 | 1,400 | 350 | 600 | 1,350 | 1,275 | 1,675 | 5,650 | 2,725 | 1,425 | 6,975 | 0-25 | 10-200 | 100-2,400 | | 0-700 | 550-1,100 | 1,000-1,550 | | |
| 575 | 1,425 | 400 | 625 | 1,375 | 1,275 | 1,675 | 5,650 | 2,725 | 1,425 | 6,950 | 0-30 | 10-245 | 120-2,940 | | 0-700 | 600-1,150 | 1,000-1,550 | | |
| 550 | 1,450 | 450 | 650 | 1,400 | 1,300 | 1,675 | 5,650 | 2,725 | 1,425 | 6,925 | 5-35 | 15-310 | 150-3,720 | | 50-750 | 600-1,150 | 1,050-1,600 | | |
| 525 | 1,475 | 500 | 675 | 1,425 | 1,300 | 1,675 | 5,650 | 2,725 | 1,450 | 6,875 | 5-50 | 20-410 | 200-4,920 | 0 | 100-750 | 650-1,150 | 1,050-1,600 | 0 | |
| 500 | 1,500 | 550 | 700 | 1,450 | 1,300 | 1,675 | 5,650 | 2,725 | 1,450 | 6,850 | 5-55 | 20-500 | 240-6,000 | 0-5 | 250-800 | 650-1,150 | 1,050-1,600 | 0-50 | |
| 475 | 1,525 | 600 | 725 | 1,450 | 1,300 | 1,675 | 5,650 | 2,750 | 1,450 | 6,825 | 5-85 | 30-750 | 360-9,000 | 0-5 | 300-800 | 650-1,150 | 1,050-1,600 | 0-150 | |
| 450 | 1,550 | 650 | 750 | 1,475 | 1,300 | 1,675 | 5,650 | 2,750 | 1,475 | 6,800 | 5-105 | 40-950 | 460-11,400 | 0-5 | 350-800 | 700-1,150 | 1,100-1,600 | 0-250 | |
| 425 | 1,575 | 700 | 775 | 1,500 | 1,300 | 1,675 | 5,650 | 2,750 | 1,475 | 6,775 | 10-140 | 50-1,250 | 600-15,000 | 0-5 | 350-800 | 700-1,200 | 1,100-1,600 | 0-300 | |
| 400 | 1,600 | 775 | 800 | 1,525 | 1,325 | 1,675 | 5,650 | 2,750 | 1,475 | 6,750 | 10-190 | 70-1,650 | 800-19,800 | 0-10 | 400-850 | 700-1,200 | 1,100-1,650 | 0-300 | |
| 375 | 1,600 | 850 | 800 | 1,550 | 1,325 | 1,650 | 5,650 | 2,750 | 1,500 | 6,700 | 10-240 | 90-2,150 | 1,040-25,800 | 0-10 | 450-850 | 750-1,200 | 1,100-1,650 | 0-350 | |
| 350 | 1,625 | 900 | 825 | 1,550 | 1,325 | 1,650 | 5,650 | 2,750 | 1,500 | 6,675 | 15-300 | 110-2,650 | 1,280-31,800 | 0-10 | 450-850 | 750-1,250 | 1,100-1,650 | 0-400 | |
| 325 | 1,650 | 925 | 850 | 1,575 | 1,325 | 1,650 | 5,500 | 2,700 | 1,500 | 6,650 | 15-370 | 140-3,300 | 1,600-39,600 | 0-10 | 450-850 | 750-1,250 | 1,150-1,650 | 0-400 | |
| 300 | 1,650 | 950 | 850 | 1,575 | 1,350 | 1,650 | 5,325 | 2,625 | 1,450 | 6,625 | 20-430 | 160-3,900 | 1,880-46,800 | 0-15 | 500-850 | 750-1,250 | 1,150-1,650 | 0-400 | |
| 275 | 1,650 | 950 | 875 | 1,600 | 1,350 | 1,650 | 5,150 | 2,525 | 1,400 | 6,575 | 25-520 | 190-4,700 | 2,260-56,400 | 0-15 | 500-900 | 800-1,250 | 1,150-1,650 | 0-450 | |
| 250 | 1,650 | 950 | 900 | 1,600 | 1,350 | 1,650 | 4,950 | 2,450 | 1,375 | 6,550 | 25-610 | 220-5,500 | 2,640-66,000 | 0-15 | 500-900 | 800-1,250 | 1,150-1,650 | 0-450 | |
| 225 | 1,650 | 975 | 900 | 1,600 | 1,375 | 1,650 | 4,775 | 2,350 | 1,325 | 6,525 | 30-720 | 260-6,500 | 3,120-78,000 | 0-20 | 550-900 | 800-1,250 | 1,150-1,650 | 0-450 | |
| 200 | 1,625 | 975 | 925 | 1,600 | 1,375 | 1,650 | 4,600 | 2,275 | 1,275 | 6,475 | 40-990 | 360-9,000 | 4,320-108,000 | 0-25 | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 | |
| 175 | 1,625 | 975 | 925 | 1,600 | 1,375 | 1,625 | 4,400 | 2,175 | 1,225 | 6,450 | 50-1,210 | 440-11,000 | 5,280-132,000 | 0-30 | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 | |
| 150 | 1,600 | 975 | 925 | 1,575 | 1,350 | 1,600 | 4,225 | 2,100 | 1,175 | 6,400 | 65-1,540 | 560-14,000 | 6,720-168,000 | 5-40 | 550-900 | 800-1,250 | 1,150-1,650 | 50-500 | |
| 125 | 1,575 | 975 | 900 | 1,550 | 1,325 | 1,575 | 4,025 | 2,025 | 1,150 | 6,375 | | | | | | | | | |
| 100 | 1,525 | 950 | 850 | 1,500 | 1,300 | 1,525 | 3,850 | 1,925 | 1,100 | 6,350 | | | | | | | | | |
| 75 | 1,450 | 925 | 825 | 1,475 | 1,250 | 1,475 | 3,675 | 1,850 | 1,050 | 6,300 | | | | | | | | | |
| 50 | 1,350 | 875 | 750 | 1,400 | 1,175 | 1,425 | 3,475 | 1,750 | 1,000 | 6,275 | | | | | | | | | |
| 25 | 1,225 | 825 | 675 | 1,325 | 1,100 | 1,375 | 3,300 | 1,675 | 950 | 6,225 | | | | | | | | | |
| 0 | 1,100 | 750 | 600 | 1,250 | 1,075 | 1,325 | 3,100 | 1,575 | 925 | 6,200 | | | | | | | | | |
| | | | | | | | | | | | FALLOUT COVERS | | | | | | | | |

FTR
ACFT 1

Figure 9.6e continued.

CASUALTY and DAMAGE Tables
Fighter Aircraft

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelter | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 1,700 | | 750 | 0 | 0 | | 400 | | | 3,350 | 3,350 | 5,850 | 5,850 | 15,200 | 11,775 | 10,350 | 9,775 | 6,275 | 4,750 | 5,850 | 4,000 | 1,700 |
| 1,600 | 0 | 950 | 275 | 275 | | 700 | | | 3,375 | 3,375 | 5,750 | 5,750 | 15,200 | 11,800 | 10,375 | 9,800 | 6,300 | 4,800 | 5,725 | 3,925 | 1,925 |
| 1,500 | 175 | 1,100 | 500 | 500 | 0 | 900 | | | 3,375 | 3,375 | 5,600 | 5,600 | 15,225 | 11,800 | 10,400 | 9,800 | 6,325 | 4,825 | 5,600 | 3,850 | 2,200 |
| 1,400 | 2,450 | 2,450 | 675 | 675 | 200 | 1,050 | | | 3,350 | 3,350 | 5,450 | 5,450 | 15,225 | 11,825 | 10,400 | 9,825 | 6,350 | 4,850 | 5,475 | 3,775 | 2,350 |
| 1,300 | 2,800 | 2,800 | 825 | 825 | 550 | 1,175 | | 0 | 3,300 | 3,300 | 5,300 | 5,300 | 15,250 | 11,825 | 10,400 | 9,825 | 6,375 | 4,875 | 5,325 | 3,675 | 2,325 |
| 1,200 | 2,875 | 2,875 | 900 | 900 | 750 | 1,275 | | 325 | 3,250 | 3,250 | 5,150 | 5,150 | 15,250 | 11,850 | 10,425 | 9,850 | 6,375 | 4,900 | 5,175 | 3,575 | 2,275 |
| 1,100 | 2,875 | 2,875 | 975 | 975 | 900 | 1,350 | | 575 | 3,175 | 3,175 | 5,000 | 5,000 | 15,250 | 11,850 | 10,425 | 9,850 | 6,400 | 4,925 | 5,025 | 3,450 | 2,200 |
| 1,050 | 2,875 | 2,875 | 1,025 | 1,025 | 950 | 1,400 | | 675 | 3,150 | 3,150 | 4,900 | 4,900 | 15,275 | 11,850 | 10,450 | 9,850 | 6,400 | 4,950 | 4,925 | 3,400 | 2,150 |
| 1,000 | 2,875 | 2,875 | 1,025 | 1,025 | 1,000 | 1,425 | 0 | 750 | 3,100 | 3,100 | 4,850 | 4,850 | 15,275 | 11,850 | 10,450 | 9,850 | 6,425 | 4,950 | 4,850 | 3,350 | 2,100 |
| 950 | 2,875 | 2,875 | 1,050 | 1,100 | 1,050 | 1,475 | 250 | 800 | 3,050 | 3,050 | 4,750 | 4,750 | 15,275 | 11,850 | 10,450 | 9,850 | 6,425 | 4,975 | 4,750 | 3,325 | 2,050 |
| 900 | 2,875 | 2,875 | 1,075 | 1,125 | 1,100 | 1,500 | 400 | 850 | 3,000 | 3,000 | 4,700 | 4,700 | 15,275 | 11,850 | 10,450 | 9,875 | 6,425 | 4,975 | 4,650 | 3,275 | 2,000 |
| 850 | 2,875 | 2,875 | 1,075 | 1,175 | 1,150 | 1,525 | 500 | 900 | 2,950 | 2,950 | 4,600 | 4,600 | 15,275 | 11,850 | 10,450 | 9,875 | 6,425 | 4,975 | 4,550 | 3,250 | 1,925 |
| 800 | 2,875 | 2,875 | 1,050 | 1,200 | 1,175 | 1,550 | 575 | 950 | 2,900 | 2,900 | 4,550 | 4,550 | 15,275 | 11,875 | 10,450 | 9,875 | 6,450 | 5,000 | 4,475 | 3,200 | 1,875 |
| 750 | 2,875 | 2,875 | 1,050 | 1,225 | 1,200 | 1,575 | 625 | 1,000 | 2,875 | 2,875 | 4,450 | 4,450 | 15,275 | 11,875 | 10,475 | 9,875 | 6,450 | 5,000 | 4,425 | 3,175 | 1,825 |
| 700 | 2,875 | 2,875 | 1,050 | 1,275 | 1,225 | 1,600 | 700 | 1,025 | 2,825 | 2,825 | 4,400 | 4,400 | 15,275 | 11,875 | 10,475 | 9,875 | 6,450 | 5,000 | 4,350 | 3,125 | 1,775 |
| 650 | 2,875 | 2,875 | 1,025 | 1,300 | 1,275 | 1,625 | 750 | 1,075 | 2,775 | 2,775 | 4,350 | 4,350 | 15,300 | 11,875 | 10,475 | 9,900 | 6,475 | 5,000 | 4,300 | 3,100 | 1,725 |
| 600 | 2,875 | 2,875 | 1,025 | 1,325 | 1,300 | 1,650 | 775 | 1,100 | 2,750 | 2,750 | 4,250 | 4,250 | 15,300 | 11,875 | 10,475 | 9,900 | 6,475 | 5,025 | 4,225 | 3,050 | 1,700 |
| 550 | 2,875 | 2,875 | 1,025 | 1,325 | 1,300 | 1,650 | 825 | 1,125 | 2,700 | 2,700 | 4,200 | 4,200 | 15,300 | 11,875 | 10,475 | 9,900 | 6,475 | 5,025 | 4,175 | 3,025 | 1,675 |
| 500 | 2,875 | 2,875 | 1,050 | 1,350 | 1,325 | 1,675 | 850 | 1,150 | 2,650 | 2,650 | 4,150 | 4,150 | 15,300 | 11,875 | 10,475 | 9,900 | 6,475 | 5,025 | 4,125 | 3,000 | 1,700 |
| 450 | 2,875 | 2,875 | 1,050 | 1,375 | 1,350 | 1,700 | 875 | 1,150 | 2,625 | 2,625 | 4,100 | 4,100 | 15,250 | 11,800 | 10,300 | 9,750 | 6,450 | 5,025 | 4,050 | 2,975 | 1,700 |
| 400 | 2,850 | 2,850 | 1,075 | 1,375 | 1,375 | 1,700 | 900 | 1,175 | 2,600 | 2,600 | 4,050 | 4,050 | 14,450 | 11,200 | 9,825 | 9,250 | 6,125 | 4,800 | 4,000 | 2,950 | 1,725 |
| 300 | 2,800 | 2,800 | 1,100 | 1,425 | 1,400 | 1,725 | 925 | 1,200 | 2,500 | 2,500 | 3,950 | 3,950 | 12,850 | 9,950 | 8,750 | 8,300 | 5,500 | 4,325 | 3,900 | 2,900 | 1,750 |
| 200 | 2,700 | 2,700 | 1,125 | 1,425 | 1,400 | 1,750 | 950 | 1,225 | 2,450 | 2,450 | 3,850 | 3,850 | 11,400 | 8,850 | 7,700 | 7,400 | 4,850 | 3,850 | 3,825 | 2,850 | 1,750 |
| 100 | 2,525 | 2,525 | 1,150 | 1,450 | 1,425 | 1,750 | 975 | 1,250 | 2,400 | 2,400 | 3,800 | 3,800 | 9,850 | 7,700 | 6,700 | 6,450 | 4,225 | 3,375 | 3,725 | 2,800 | 1,750 |
| 0 | 2,250 | 2,250 | 1,225 | 1,450 | 1,425 | 1,750 | 975 | 1,250 | 2,350 | 2,350 | 3,700 | 3,700 | 8,250 | 6,700 | 5,700 | 5,500 | 3,650 | 2,900 | 3,650 | 2,775 | 1,775 |

HOB_{fs} = 327mLow HOB_{min} = 310mHigh HOB_{min} = 702HOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 9.6f.

CASUALTY and DAMAGE Tables
Fighter Aircraft
All figures in meters

INDIA/200 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 1,700 | | | | 0 | | | 7,300 | 3,250 | 1,225 | 9,575 | | | 0-5 | | | | 0-600 | |
| 1,600 | | | | 250 | | 0 | 7,325 | 3,300 | 1,350 | 9,525 | | | 0-10 | | | | 0-850 | |
| 1,500 | | | | 575 | | 2,000 | 7,350 | 3,350 | 1,475 | 9,450 | | | 0-10 | | | | 0-1,000 | |
| 1,400 | 0 | | | 825 | | 2,250 | 7,375 | 3,375 | 1,575 | 9,375 | | 0 | 0-20 | | | 0 | 0-1,150 | |
| 1,300 | 150 | | | 1,075 | 0 | 2,275 | 7,375 | 3,425 | 1,650 | 9,300 | | 0-5 | 0-35 | | | 0-400 | 0-1,250 | |
| 1,200 | 450 | | | 1,275 | 1,625 | 2,275 | 7,400 | 3,450 | 1,725 | 9,225 | | 0-5 | 5-60 | | | 0-650 | 400-1,350 | |
| 1,100 | 750 | | 0 | 1,425 | 1,650 | 2,250 | 7,425 | 3,500 | 1,800 | 9,125 | | 0-10 | 5-120 | | | 0-800 | 600-1,450 | |
| 1,050 | 950 | | 150 | 1,500 | 1,650 | 2,250 | 7,425 | 3,500 | 1,825 | 9,075 | 0 | 0-15 | 10-160 | | 0 | 0-850 | 700-1,500 | |
| 1,000 | 1,350 | 0 | 300 | 1,550 | 1,675 | 2,250 | 7,425 | 3,525 | 1,850 | 9,025 | 0-5 | 0-20 | 10-230 | | 0-50 | 0-950 | 800-1,500 | |
| 950 | 1,575 | 100 | 425 | 1,600 | 1,675 | 2,250 | 7,450 | 3,525 | 1,875 | 8,975 | 0-5 | 0-30 | 15-320 | | 0-300 | 0-1,000 | 850-1,550 | |
| 900 | 1,675 | 200 | 550 | 1,650 | 1,700 | 2,250 | 7,450 | 3,550 | 1,900 | 8,925 | 0-5 | 0-40 | 20-440 | | 0-450 | 0-1,050 | 900-1,600 | |
| 850 | 1,750 | 300 | 650 | 1,700 | 1,725 | 2,225 | 7,450 | 3,550 | 1,925 | 8,875 | 0-10 | 5-55 | 25-630 | | 0-550 | 50-1,050 | 950-1,600 | |
| 800 | 1,800 | 400 | 725 | 1,750 | 1,725 | 2,225 | 7,450 | 3,575 | 1,950 | 8,825 | 0-10 | 5-75 | 40-890 | | 0-600 | 300-1,100 | 1,000-1,650 | |
| 750 | 1,875 | 475 | 800 | 1,800 | 1,725 | 2,225 | 7,450 | 3,575 | 1,950 | 8,775 | 0-15 | 5-110 | 55-1,320 | | 0-700 | 400-1,150 | 1,050-1,650 | |
| 700 | 1,925 | 575 | 850 | 1,850 | 1,725 | 2,225 | 7,475 | 3,600 | 1,975 | 8,725 | 0-20 | 10-165 | 80-1,980 | | 0-750 | 500-1,200 | 1,050-1,700 | |
| 650 | 1,975 | 675 | 900 | 1,875 | 1,750 | 2,225 | 7,475 | 3,600 | 2,000 | 8,675 | 0-30 | 15-260 | 125-3,120 | | 0-800 | 550-1,200 | 1,100-1,700 | |
| 600 | 2,025 | 775 | 950 | 1,925 | 1,750 | 2,200 | 7,475 | 3,600 | 2,025 | 8,600 | 5-45 | 20-400 | 200-4,800 | 0 | 50-800 | 600-1,250 | 1,100-1,700 | 0 |
| 550 | 2,050 | 900 | 1,000 | 1,975 | 1,775 | 2,200 | 7,475 | 3,625 | 2,025 | 8,550 | 5-70 | 25-620 | 300-7,440 | 0-5 | 250-850 | 650-1,250 | 1,150-1,750 | 0-50 |
| 500 | 2,100 | 1,050 | 1,050 | 2,000 | 1,775 | 2,200 | 7,475 | 3,625 | 2,050 | 8,475 | 5-110 | 40-1,000 | 480-12,000 | 0-5 | 350-900 | 700-1,300 | 1,150-1,750 | 0-250 |
| 450 | 2,150 | 1,150 | 1,075 | 2,050 | 1,800 | 2,200 | 7,450 | 3,625 | 2,075 | 8,425 | 10-210 | 80-1,900 | 920-22,800 | 0-5 | 400-900 | 750-1,300 | 1,200-1,750 | 0-350 |
| 400 | 2,175 | 1,225 | 1,125 | 2,075 | 1,800 | 2,200 | 7,075 | 3,475 | 2,000 | 8,350 | 15-370 | 135-3,300 | 1,590-39,600 | 0-10 | 450-950 | 750-1,300 | 1,200-1,800 | 0-400 |
| 300 | 2,175 | 1,275 | 1,175 | 2,125 | 1,825 | 2,075 | 6,300 | 3,125 | 1,800 | 8,225 | FALLOUT GOVERNS | | | | | | | |
| 200 | 2,125 | 1,300 | 1,200 | 2,100 | 1,775 | 2,050 | 5,550 | 2,725 | 1,600 | 8,100 | | | | | | | | |
| 100 | 1,950 | 1,225 | 1,100 | 1,950 | 1,700 | 1,925 | 4,775 | 2,450 | 1,425 | 7,950 | | | | | | | | |
| 0 | 1,450 | 975 | 800 | 1,650 | 1,350 | 1,725 | 4,025 | 2,100 | 1,225 | 7,800 | | | | | | | | |

Figure 9.6f continued.

FTR
ACFT 1

CASUALTY and DAMAGE Tables
Fighter Aircraft

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|-------|-------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelter | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 2,200 | | 0 | 275 | 275 | | | | | 4,650 | 4,650 | 7,800 | 7,800 | 21,700 | 17,700 | 15,400 | 14,200 | 9,100 | 7,100 | 7,800 | 5,350 | 2,550 |
| 2,100 | | 400 | 525 | 525 | | 0 | | | 4,650 | 4,650 | 7,800 | 7,650 | 21,700 | 17,700 | 15,500 | 14,300 | 9,200 | 7,100 | 7,700 | 5,275 | 2,825 |
| 2,000 | 0 | 750 | 750 | 750 | | 200 | | | 4,650 | 4,650 | 7,550 | 7,550 | 21,700 | 17,700 | 15,500 | 14,300 | 8,200 | 7,100 | 7,575 | 5,200 | 3,050 |
| 1,900 | 3,550 | 3,550 | 925 | 925 | | 650 | | | 4,600 | 4,600 | 7,400 | 7,400 | 21,700 | 17,700 | 15,500 | 14,300 | 9,200 | 7,200 | 7,425 | 5,125 | 3,175 |
| 1,800 | 4,000 | 4,000 | 1,075 | 1,075 | | 900 | | | 4,500 | 4,500 | 7,250 | 7,250 | 21,700 | 17,700 | 15,500 | 14,300 | 9,200 | 7,200 | 7,275 | 5,025 | 3,175 |
| 1,700 | 4,100 | 4,100 | 1,175 | 1,175 | 0 | 1,075 | | | 4,450 | 4,450 | 7,100 | 7,100 | 21,700 | 17,700 | 15,500 | 14,300 | 9,200 | 7,200 | 7,150 | 4,925 | 3,125 |
| 1,600 | 4,150 | 4,150 | 1,250 | 1,250 | 400 | 1,225 | | | 4,350 | 4,350 | 6,900 | 6,900 | 21,700 | 17,700 | 15,500 | 14,300 | 9,300 | 7,200 | 6,975 | 4,825 | 3,075 |
| 1,500 | 4,150 | 4,150 | 1,325 | 1,325 | 675 | 1,325 | | 0 | 4,250 | 4,250 | 6,750 | 6,750 | 21,700 | 17,700 | 15,500 | 14,300 | 9,300 | 7,200 | 6,825 | 4,700 | 3,000 |
| 1,400 | 4,150 | 4,150 | 1,400 | 1,400 | 875 | 1,450 | | 325 | 4,150 | 4,150 | 6,600 | 6,600 | 21,700 | 17,700 | 15,500 | 14,300 | 9,300 | 7,300 | 6,650 | 4,600 | 2,900 |
| 1,300 | 4,150 | 4,150 | 1,425 | 1,425 | 1,000 | 1,525 | 0 | 625 | 4,100 | 4,100 | 6,450 | 6,450 | 21,700 | 17,700 | 15,500 | 14,300 | 9,300 | 7,300 | 6,450 | 4,500 | 2,800 |
| 1,200 | 4,150 | 4,150 | 1,450 | 1,450 | 1,125 | 1,600 | 275 | 800 | 4,000 | 4,000 | 6,300 | 6,300 | 21,800 | 17,700 | 15,600 | 14,400 | 9,300 | 7,300 | 6,275 | 4,425 | 2,675 |
| 1,100 | 4,150 | 4,150 | 1,450 | 1,450 | 1,225 | 1,675 | 400 | 925 | 3,900 | 3,900 | 6,200 | 6,200 | 21,800 | 17,800 | 15,600 | 14,400 | 9,300 | 7,300 | 6,100 | 4,350 | 2,550 |
| 1,050 | 4,150 | 4,150 | 1,425 | 1,425 | 1,275 | 1,725 | 475 | 1,000 | 3,850 | 3,850 | 6,100 | 6,100 | 21,800 | 17,800 | 15,600 | 14,400 | 9,300 | 7,300 | 6,050 | 4,325 | 2,500 |
| 1,000 | 4,150 | 4,150 | 1,425 | 1,425 | 1,300 | 1,750 | 575 | 1,050 | 3,850 | 3,850 | 6,050 | 6,050 | 21,800 | 17,800 | 15,600 | 14,400 | 9,300 | 7,300 | 5,975 | 4,275 | 2,450 |
| 950 | 4,150 | 4,150 | 1,400 | 1,400 | 1,350 | 1,775 | 650 | 1,075 | 3,800 | 3,800 | 6,000 | 6,000 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,300 | 5,900 | 4,250 | 2,400 |
| 900 | 4,150 | 4,150 | 1,400 | 1,400 | 1,375 | 1,800 | 725 | 1,125 | 3,750 | 3,750 | 5,900 | 5,900 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,300 | 5,850 | 4,200 | 2,375 |
| 850 | 4,150 | 4,150 | 1,400 | 1,400 | 1,400 | 1,825 | 775 | 1,175 | 3,700 | 3,700 | 5,850 | 5,850 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,400 | 5,775 | 4,175 | 2,325 |
| 800 | 4,150 | 4,150 | 1,375 | 1,450 | 1,450 | 1,850 | 825 | 1,200 | 3,700 | 3,700 | 5,800 | 5,800 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,400 | 5,725 | 4,150 | 2,300 |
| 750 | 4,150 | 4,150 | 1,375 | 1,475 | 1,475 | 1,850 | 875 | 1,225 | 3,650 | 3,650 | 5,750 | 5,750 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,400 | 5,675 | 4,125 | 2,275 |
| 700 | 4,150 | 4,150 | 1,350 | 1,500 | 1,500 | 1,875 | 925 | 1,250 | 3,600 | 3,600 | 5,650 | 5,650 | 21,800 | 17,800 | 15,600 | 14,400 | 9,400 | 7,400 | 5,600 | 4,075 | 2,275 |
| 650 | 4,150 | 4,150 | 1,350 | 1,525 | 1,600 | 1,900 | 950 | 1,300 | 3,550 | 3,550 | 5,600 | 5,600 | 21,800 | 17,800 | 15,400 | 14,300 | 9,400 | 7,300 | 5,550 | 4,050 | 2,250 |
| 600 | 4,150 | 4,150 | 1,350 | 1,550 | 1,700 | 1,925 | 975 | 1,325 | 3,550 | 3,550 | 5,550 | 5,550 | 20,800 | 17,200 | 15,000 | 13,900 | 9,100 | 7,100 | 5,500 | 4,025 | 2,250 |
| 550 | 4,125 | 4,125 | 1,350 | 1,550 | 1,750 | 1,925 | 1,025 | 1,350 | 3,500 | 3,500 | 5,500 | 5,500 | 19,400 | 16,500 | 14,400 | 13,400 | 8,700 | 6,800 | 5,450 | 4,000 | 2,250 |
| 500 | 4,100 | 4,100 | 1,350 | 1,575 | 1,800 | 1,950 | 1,050 | 1,350 | 3,450 | 3,450 | 5,450 | 5,450 | 18,500 | 15,900 | 13,900 | 12,800 | 8,400 | 6,600 | 5,400 | 3,975 | 2,250 |
| 400 | 4,025 | 4,025 | 1,400 | 1,600 | 1,825 | 1,975 | 1,075 | 1,375 | 3,400 | 3,400 | 5,300 | 5,300 | 17,600 | 14,700 | 12,800 | 11,800 | 7,800 | 6,100 | 5,300 | 3,925 | 2,275 |
| 300 | 3,925 | 3,925 | 1,450 | 1,625 | 1,850 | 2,000 | 1,125 | 1,400 | 3,350 | 3,350 | 5,200 | 5,200 | 16,000 | 13,500 | 11,700 | 10,800 | 7,100 | 5,600 | 5,200 | 3,875 | 2,300 |
| 200 | 3,775 | 3,775 | 1,500 | 1,650 | 1,825 | 2,000 | 1,125 | 1,425 | 3,300 | 3,300 | 5,100 | 5,100 | 14,400 | 12,200 | 10,600 | 9,800 | 6,500 | 5,200 | 5,125 | 3,825 | 2,325 |
| 100 | 3,550 | 3,550 | 1,575 | 1,650 | 1,700 | 2,000 | 1,150 | 1,450 | 3,250 | 3,250 | 5,000 | 5,000 | 13,000 | 11,000 | 9,500 | 8,800 | 5,900 | 4,700 | 5,050 | 3,800 | 2,375 |
| 0 | 3,250 | 3,250 | 1,675 | 1,675 | 1,650 | 2,000 | 1,150 | 1,450 | 3,250 | 3,250 | 4,450 | 4,450 | 11,500 | 9,700 | 8,500 | 7,900 | 5,300 | 4,200 | 4,975 | 3,775 | 2,400 |

HOB_{fs} = 445mLow HOB_{min} = 420mHigh HOB_{min} = 953mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 9.6g.

CASUALTY and DAMAGE Tables Fighter Aircraft

JULIETT/500 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
veh | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d-degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity of GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 2,200 | | | | 275 | | 0 | 10,475 | 4,925 | 2,200 | 12,925 | | | | | | | | |
| 2,100 | | | | 625 | | 3,325 | 10,500 | 4,975 | 2,300 | 12,875 | | | | | | | | |
| 2,000 | | | | 925 | | 3,350 | 10,500 | 5,000 | 2,375 | 12,800 | | | 0 | | | | 0 | |
| 1,900 | 0 | | | 1,200 | | 3,350 | 10,525 | 5,050 | 2,450 | 12,725 | | | 0-5 | | | | 0-450 | |
| 1,800 | 75 | | | 1,450 | 0 | 3,325 | 10,550 | 5,075 | 2,525 | 12,650 | | | 0-5 | | | | 0-750 | |
| 1,700 | 425 | | | 1,675 | 2,150 | 3,300 | 10,575 | 5,125 | 2,600 | 12,575 | | | 0-10 | | | | 0-1,000 | |
| 1,600 | 725 | | | 1,875 | 2,225 | 3,275 | 10,575 | 5,150 | 2,675 | 12,475 | | 0 | 0-15 | | | 0 | 0-1,150 | |
| 1,500 | 1,050 | | 0 | 2,050 | 2,250 | 3,250 | 10,600 | 5,175 | 2,725 | 12,400 | | 0-5 | 0-25 | | | 0-50 | 0-1,250 | |
| 1,400 | 1,525 | 0 | 300 | 2,200 | 2,275 | 3,200 | 10,600 | 5,200 | 2,775 | 12,300 | | 0-5 | 5-50 | | | 0-550 | 50-1,400 | |
| 1,300 | 2,250 | 125 | 600 | 2,325 | 2,300 | 3,175 | 10,625 | 5,225 | 2,825 | 12,200 | | 0-10 | 5-85 | | | 0-750 | 550-1,500 | |
| 1,200 | 2,450 | 325 | 825 | 2,400 | 2,325 | 3,150 | 10,625 | 5,250 | 2,875 | 12,100 | | 0-15 | 10-150 | | 0 | 0-900 | 750-1,550 | |
| 1,100 | 2,600 | 525 | 1,025 | 2,525 | 2,350 | 3,125 | 10,650 | 5,275 | 2,900 | 12,000 | 0-5 | 0-25 | 15-290 | | 0-350 | 0-1,050 | 900-1,650 | |
| 1,050 | 2,650 | 625 | 1,100 | 2,575 | 2,350 | 3,125 | 10,650 | 5,275 | 2,925 | 11,950 | 0-5 | 0-35 | 20-390 | | 0-500 | 0-1,100 | 950-1,650 | |
| 1,000 | 2,700 | 750 | 1,175 | 2,600 | 2,350 | 3,100 | 10,650 | 5,300 | 2,950 | 11,900 | 0-10 | 5-50 | 25-570 | | 0-600 | 50-1,150 | 1,000-1,700 | |
| 950 | 2,775 | 850 | 1,225 | 2,650 | 2,375 | 3,075 | 10,650 | 5,300 | 2,950 | 11,825 | 0-10 | 5-65 | 35-780 | | 0-650 | 300-1,200 | 1,050-1,750 | |
| 900 | 2,825 | 950 | 1,275 | 2,700 | 2,375 | 3,050 | 10,650 | 5,325 | 2,975 | 11,775 | 0-10 | 5-90 | 45-1,080 | | 0-750 | 450-1,200 | 1,100-1,750 | |
| 850 | 2,875 | 1,050 | 1,350 | 2,750 | 2,375 | 3,050 | 10,675 | 5,325 | 3,000 | 11,725 | 0-15 | 10-130 | 65-1,560 | | 0-800 | 550-1,250 | 1,150-1,800 | |
| 800 | 2,925 | 1,150 | 1,400 | 2,800 | 2,400 | 3,025 | 10,675 | 5,325 | 3,000 | 11,675 | 0-25 | 10-185 | 90-2,220 | | 0-850 | 600-1,300 | 1,150-1,800 | |
| 750 | 2,975 | 1,275 | 1,450 | 2,825 | 2,400 | 3,000 | 10,675 | 5,350 | 3,025 | 11,600 | 0-35 | 15-275 | 135-3,300 | 0 | 0-900 | 700-1,300 | 1,200-1,800 | 0 |
| 700 | 3,025 | 1,450 | 1,500 | 2,875 | 2,400 | 2,975 | 10,675 | 5,350 | 3,025 | 11,550 | 5-50 | 20-420 | 200-4,950 | 0-5 | 50-950 | 750-1,350 | 1,250-1,850 | 0-50 |
| 650 | 3,050 | 1,600 | 1,525 | 2,925 | 2,425 | 2,975 | 10,625 | 5,350 | 3,100 | 11,475 | 5-75 | 30-650 | 320-7,800 | 0-5 | 300-950 | 800-1,350 | 1,250-1,850 | 0-300 |
| 600 | 3,100 | 1,700 | 1,575 | 2,950 | 2,450 | 2,950 | 10,250 | 5,175 | 3,000 | 11,425 | 5-110 | 40-1,000 | 480-12,000 | 0-5 | 400-1,000 | 800-1,400 | 1,300-1,900 | 0-400 |
| 550 | 3,125 | 1,750 | 1,625 | 3,000 | 2,450 | 2,925 | 9,875 | 5,000 | 2,900 | 11,350 | 10-175 | 65-1,550 | 750-18,600 | 0-5 | 450-1,050 | 850-1,400 | 1,300-1,900 | 0-450 |
| 500 | 3,150 | 1,800 | 1,650 | 3,025 | 2,450 | 2,900 | 9,475 | 4,825 | 2,800 | 11,300 | 15-280 | 100-2,500 | 1,200-30,000 | 0-10 | 500-1,050 | 900-1,450 | 1,350-1,900 | 0-500 |
| 400 | 3,125 | 1,825 | 1,725 | 3,075 | 2,475 | 2,850 | 8,725 | 4,450 | 2,575 | 11,150 | FALLOUT GOVERNS | | | | | | | |
| 300 | 3,075 | 1,850 | 1,750 | 3,050 | 2,425 | 2,825 | 7,950 | 4,100 | 2,375 | 11,025 | | | | | | | | |
| 200 | 2,975 | 1,825 | 1,675 | 2,925 | 2,375 | 2,750 | 7,200 | 3,750 | 2,175 | 10,875 | | | | | | | | |
| 100 | 2,650 | 1,700 | 1,475 | 2,725 | 2,200 | 2,625 | 6,425 | 3,375 | 1,975 | 10,750 | | | | | | | | |
| 0 | 2,100 | 1,400 | 1,150 | 2,400 | 1,900 | 2,500 | 5,675 | 3,025 | 1,775 | 10,600 | | | | | | | | |

Figure 9.6g continued.

¹Fighter Aircraft.

FTR
ACFT 1

CASUALTY and DAMAGE Tables
Fighter Aircraft

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 2,200 | 5,350 | 5,350 | 1,425 | 1,425 | | 375 | | | 5,700 | 5,700 | 9,150 | 9,150 | 28,300 | 23,700 | 20,800 | 18,900 | 12,500 | 9,800 | 9,075 | 6,275 | 4,000 |
| 2,100 | 5,450 | 5,450 | 1,525 | 1,525 | | 750 | | | 5,650 | 5,650 | 9,000 | 9,000 | 28,300 | 23,700 | 20,800 | 18,900 | 12,500 | 9,800 | 8,925 | 6,150 | 3,925 |
| 2,000 | 5,475 | 5,475 | 1,600 | 1,600 | | 1,000 | | | 5,600 | 5,600 | 8,800 | 8,800 | 28,300 | 23,700 | 20,800 | 18,900 | 12,500 | 9,800 | 8,775 | 6,050 | 3,850 |
| 1,900 | 5,475 | 5,475 | 1,675 | 1,675 | 0 | 1,175 | | | 5,500 | 5,500 | 8,600 | 8,600 | 28,300 | 23,700 | 20,800 | 18,900 | 12,600 | 9,800 | 8,600 | 5,925 | 3,775 |
| 1,800 | 5,450 | 5,450 | 1,725 | 1,725 | 375 | 1,325 | | | 5,400 | 5,400 | 8,500 | 8,500 | 28,400 | 23,700 | 20,800 | 18,900 | 12,600 | 9,800 | 8,450 | 5,825 | 3,700 |
| 1,700 | 5,450 | 5,450 | 1,775 | 1,775 | 700 | 1,450 | 0 | 0 | 5,350 | 5,350 | 8,350 | 8,350 | 28,400 | 23,700 | 20,900 | 18,900 | 12,600 | 9,800 | 8,275 | 5,725 | 3,600 |
| 1,600 | 5,475 | 5,475 | 1,800 | 1,800 | 900 | 1,550 | 125 | 125 | 5,250 | 5,250 | 8,200 | 8,200 | 28,400 | 23,700 | 20,900 | 18,900 | 12,600 | 9,900 | 8,975 | 5,650 | 3,500 |
| 1,500 | 5,475 | 5,475 | 1,825 | 1,825 | 1,075 | 1,650 | 350 | 550 | 5,150 | 5,150 | 8,050 | 8,050 | 28,400 | 23,700 | 20,900 | 18,900 | 12,600 | 9,900 | 7,900 | 5,575 | 3,375 |
| 1,400 | 5,475 | 5,475 | 1,825 | 1,825 | 1,200 | 1,725 | 500 | 775 | 5,050 | 5,050 | 7,900 | 7,900 | 28,400 | 23,700 | 20,900 | 19,000 | 12,600 | 9,900 | 7,725 | 5,500 | 3,250 |
| 1,300 | 5,475 | 5,475 | 1,800 | 1,800 | 1,300 | 1,800 | 600 | 925 | 4,950 | 4,950 | 7,750 | 7,750 | 28,400 | 23,700 | 20,900 | 19,000 | 12,600 | 9,900 | 7,575 | 5,425 | 3,125 |
| 1,200 | 5,475 | 5,475 | 1,775 | 1,775 | 1,400 | 1,875 | 700 | 1,050 | 4,900 | 4,900 | 7,600 | 7,600 | 28,400 | 23,800 | 20,900 | 19,000 | 12,600 | 9,900 | 7,450 | 5,350 | 3,025 |
| 1,100 | 5,475 | 5,475 | 1,750 | 1,750 | 1,475 | 1,925 | 775 | 1,175 | 4,800 | 4,800 | 7,450 | 7,450 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 9,900 | 7,325 | 5,275 | 2,950 |
| 1,050 | 5,475 | 5,475 | 1,750 | 1,750 | 1,500 | 1,975 | 825 | 1,200 | 4,750 | 4,750 | 7,400 | 7,400 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 9,900 | 7,250 | 5,250 | 2,925 |
| 1,000 | 5,475 | 5,475 | 1,725 | 1,725 | 1,550 | 2,000 | 850 | 1,250 | 4,700 | 4,700 | 7,350 | 7,350 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 10,000 | 7,200 | 5,225 | 2,900 |
| 950 | 5,475 | 5,475 | 1,725 | 1,725 | 1,675 | 2,025 | 875 | 1,300 | 4,650 | 4,650 | 7,250 | 7,250 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 10,000 | 7,150 | 5,200 | 2,875 |
| 900 | 5,475 | 5,475 | 1,700 | 1,700 | 1,850 | 2,050 | 925 | 1,325 | 4,600 | 4,600 | 7,200 | 7,200 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 10,000 | 7,075 | 5,150 | 2,875 |
| 850 | 5,475 | 5,475 | 1,700 | 1,700 | 2,025 | 2,050 | 975 | 1,350 | 4,550 | 4,550 | 7,150 | 7,150 | 27,800 | 23,500 | 20,600 | 18,800 | 12,600 | 9,900 | 7,025 | 5,125 | 2,850 |
| 800 | 5,475 | 5,475 | 1,700 | 1,700 | 2,150 | 2,150 | 1,000 | 1,400 | 4,550 | 4,550 | 7,100 | 7,100 | 27,200 | 22,900 | 20,000 | 18,300 | 12,300 | 9,600 | 6,975 | 5,100 | 2,850 |
| 750 | 5,450 | 5,450 | 1,700 | 1,700 | 2,250 | 2,250 | 1,050 | 1,425 | 4,500 | 4,500 | 7,050 | 7,050 | 26,500 | 22,200 | 19,500 | 17,800 | 11,900 | 9,400 | 6,925 | 5,075 | 2,850 |
| 700 | 5,450 | 5,450 | 1,700 | 1,700 | 2,300 | 2,300 | 1,075 | 1,450 | 4,450 | 4,450 | 7,000 | 7,000 | 25,800 | 21,600 | 18,900 | 17,300 | 11,600 | 9,100 | 6,875 | 5,050 | 2,850 |
| 650 | 5,425 | 5,425 | 1,700 | 1,700 | 2,350 | 2,350 | 1,125 | 1,475 | 4,400 | 4,400 | 6,950 | 6,950 | 25,000 | 21,000 | 18,300 | 16,800 | 11,300 | 8,900 | 6,825 | 5,025 | 2,850 |
| 600 | 5,400 | 5,400 | 1,725 | 1,725 | 2,375 | 2,375 | 1,150 | 1,475 | 4,400 | 4,400 | 6,900 | 6,900 | 24,300 | 20,400 | 17,800 | 16,300 | 11,000 | 8,600 | 6,775 | 5,000 | 2,850 |
| 500 | 5,325 | 5,325 | 1,750 | 1,750 | 2,425 | 2,425 | 1,200 | 1,525 | 4,350 | 4,350 | 6,800 | 6,800 | 22,700 | 19,100 | 16,700 | 15,300 | 10,300 | 8,100 | 6,675 | 4,950 | 2,875 |
| 400 | 5,225 | 5,225 | 1,800 | 1,800 | 2,450 | 2,450 | 1,225 | 1,550 | 4,300 | 4,300 | 6,650 | 6,650 | 21,200 | 17,800 | 15,600 | 14,300 | 9,600 | 7,600 | 6,575 | 4,900 | 2,900 |
| 300 | 5,075 | 5,075 | 1,850 | 1,850 | 2,450 | 2,450 | 1,250 | 1,575 | 4,250 | 4,250 | 6,550 | 6,550 | 19,800 | 16,500 | 14,500 | 13,300 | 9,000 | 7,100 | 6,500 | 4,850 | 2,925 |
| 200 | 4,850 | 4,850 | 1,925 | 1,925 | 2,375 | 2,375 | 1,275 | 1,600 | 4,200 | 4,200 | 6,500 | 6,500 | 18,300 | 15,200 | 13,400 | 12,200 | 8,300 | 6,600 | 6,400 | 4,825 | 2,950 |
| 100 | 4,600 | 4,600 | 2,000 | 2,000 | 2,200 | 2,225 | 1,300 | 1,600 | 4,150 | 4,150 | 6,400 | 6,400 | 16,700 | 14,000 | 12,200 | 11,200 | 7,600 | 6,100 | 6,325 | 4,775 | 2,975 |
| 0 | 4,275 | 4,275 | 2,100 | 2,100 | 1,850 | 2,225 | 1,300 | 1,600 | 4,100 | 4,100 | 6,300 | 6,300 | 15,100 | 12,800 | 11,300 | 10,200 | 7,000 | 5,600 | 6,250 | 4,750 | 3,025 |

$$HOB_{fs} = 560m$$

$$Low\ HOB_{min} = 530m$$

$$High\ HOB_{min} = 1200m$$

$$HOB_{99} = HOB_{fs} + 3.5\ PE_h\ m$$

$$HOB_{98} = HOB_{fs} + 3.0\ PE_h\ m$$

$$HOB_{90} = HOB_{fs} + 1.9\ PE_h\ m$$

Figure 9.6h.

CASUALTY and DAMAGE Tables
Fighter Aircraft

KILO/1,000 KT

All figures in meters

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (Rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 2,200 | 375 | | | 2,075 | 0 | 4,275 | 13,925 | 6,875 | 3,600 | 15,875 | | | 0 | | | | 0 | |
| 2,100 | 700 | | | 2,300 | 2,750 | 4,250 | 13,950 | 6,900 | 3,650 | 15,800 | | | | | | | | |
| 2,000 | 1,000 | | | 2,500 | 2,775 | 4,200 | 13,950 | 6,950 | 3,700 | 15,725 | | | 0-5 | | | | 0-450 | |
| 1,900 | 1,350 | | 0 | 2,675 | 2,800 | 4,150 | 13,975 | 6,975 | 3,750 | 15,625 | | | 0-5 | | | | 0-800 | |
| 1,800 | 1,775 | 0 | 275 | 2,850 | 2,825 | 4,100 | 13,975 | 7,000 | 3,800 | 15,525 | | | 0-10 | | | | 0-1,000 | |
| 1,700 | 2,675 | 25 | 600 | 2,975 | 2,850 | 4,050 | 14,000 | 7,025 | 3,850 | 15,450 | | | 0-15 | | | 0 | 0-1,050 | |
| 1,600 | 3,075 | 225 | 875 | 3,100 | 2,875 | 4,000 | 14,000 | 7,050 | 3,900 | 15,350 | | | 0-30 | | | 0-400 | 0-1,300 | |
| 1,500 | 3,275 | 450 | 1,125 | 3,200 | 2,900 | 3,975 | 14,025 | 7,075 | 3,925 | 15,250 | | | 5-50 | | | 0-700 | 50-1,400 | |
| 1,400 | 3,400 | 675 | 1,325 | 3,300 | 2,925 | 3,925 | 14,025 | 7,075 | 3,975 | 15,125 | 0 | 0-10 | 5-100 | | 0 | 0-900 | 550-1,500 | |
| 1,300 | 3,525 | 875 | 1,500 | 3,400 | 2,950 | 3,900 | 14,050 | 7,100 | 4,000 | 15,025 | 0-5 | 0-15 | 10-170 | | 0-50 | 0-1,050 | 750-1,600 | |
| 1,200 | 3,650 | 1,100 | 1,600 | 3,500 | 2,950 | 3,875 | 14,050 | 7,125 | 4,025 | 14,925 | 0-5 | 0-25 | 15-300 | | 0-500 | 0-1,150 | 900-1,700 | |
| 1,100 | 3,750 | 1,325 | 1,725 | 3,600 | 2,975 | 3,850 | 14,050 | 7,125 | 4,075 | 14,800 | 0-10 | 5-50 | 25-580 | | 0-700 | 50-1,250 | 1,050-1,750 | |
| 1,050 | 3,800 | 1,425 | 1,800 | 3,650 | 2,975 | 3,825 | 14,050 | 7,150 | 4,075 | 14,750 | 0-10 | 5-65 | 35-780 | | 0-800 | 350-13,00 | 1,100-1,800 | |
| 1,000 | 3,850 | 1,550 | 1,850 | 3,700 | 3,000 | 3,800 | 14,075 | 7,150 | 4,100 | 14,675 | 0-15 | 5-95 | 50-1,140 | | 0-850 | 500-1,350 | 1,150-1,800 | |
| 950 | 3,900 | 1,675 | 1,900 | 3,725 | 3,000 | 3,775 | 14,075 | 7,150 | 4,100 | 14,625 | 0-15 | 10-130 | 65-1,560 | | 0-900 | 600-1,400 | 1,200-1,850 | |
| 900 | 3,950 | 1,850 | 1,950 | 3,775 | 3,025 | 3,775 | 14,075 | 7,175 | 4,125 | 14,575 | 0-20 | 10-180 | 90-2,160 | | 0-950 | 650-1,400 | 1,200-1,850 | |
| 850 | 4,000 | 2,025 | 2,000 | 3,825 | 3,025 | 3,750 | 13,800 | 7,075 | 4,125 | 14,500 | 0-30 | 15-260 | 125-3,120 | | 0-1,000 | 700-1,450 | 1,250-1,900 | |
| 800 | 4,050 | 2,150 | 2,050 | 3,875 | 3,050 | 3,750 | 13,400 | 6,900 | 4,025 | 14,450 | 5-45 | 15-370 | 180-4,440 | 0 | 50-1,050 | 800-1,450 | 1,300-1,900 | 0 |
| 750 | 4,100 | 2,250 | 2,075 | 3,900 | 3,050 | 3,725 | 13,025 | 6,700 | 3,925 | 14,375 | 5-65 | 25-550 | 270-6,600 | 0-5 | 300-1,100 | 850-1,500 | 1,300-1,950 | 0-50 |
| 700 | 4,125 | 2,300 | 2,125 | 3,950 | 3,050 | 3,700 | 12,625 | 6,525 | 3,825 | 14,325 | 5-95 | 35-835 | 400-9,900 | 0-5 | 400-1,100 | 900-1,500 | 1,350-1,950 | 0-300 |
| 650 | 4,125 | 2,350 | 2,175 | 3,975 | 3,075 | 3,675 | 12,225 | 6,350 | 3,725 | 14,250 | 10-145 | 55-1,300 | 63 C-15,600 | 0-5 | 500-1,150 | 900-1,550 | 1,350-1,950 | 0-400 |
| 600 | 4,150 | 2,375 | 2,200 | 4,000 | 3,075 | 3,650 | 11,850 | 6,150 | 3,625 | 14,175 | 10-220 | 80-2,000 | 960-24,000 | 0-10 | 550-12,00 | 950-1,550 | 1,400-2,000 | 0-450 |
| 500 | 4,125 | 2,425 | 2,275 | 4,050 | 3,075 | 3,625 | 11,050 | 5,775 | 3,400 | 14,050 | FALLOUT GOVERNS | | | | | | | |
| 400 | 4,075 | 2,450 | 2,325 | 4,025 | 3,100 | 3,575 | 10,275 | 5,400 | 3,200 | 13,925 | | | | | | | | |
| 300 | 4,000 | 2,450 | 2,275 | 3,950 | 3,075 | 3,475 | 9,475 | 5,050 | 3,000 | 13,775 | | | | | | | | |
| 200 | 3,825 | 2,375 | 2,125 | 3,975 | 3,050 | 3,400 | 8,700 | 4,675 | 2,800 | 13,625 | | | | | | | | |
| 100 | 3,350 | 2,200 | 1,875 | 3,500 | 2,825 | 3,275 | 7,925 | 4,300 | 2,575 | 13,500 | | | | | | | | |
| 0 | 2,775 | 1,850 | 1,500 | 3,150 | 2,525 | 3,200 | 7,125 | 3,925 | 2,375 | 13,350 | | | | | | | | |

Figure 9.6h continued.

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¹Fighter Aircraft.

CONTINGENT EFFECTS Tables **Fighter Aircraft**

INDUCED RADIATION IN SOILS (See note 1.)
Fallout activity is not significant.
Impact burst not tabulated, fallout governs.

| Yield
KT | HOB | Estimated radii in meters of 2 rad/hr contour of induced radiation,
1 hour after burst. | | | | Estimated induced radiation intensity, 1 hour
after burst, at GZ. In rad/hr. | | | |
|-------------|------|--|---------------------------------|--------------------------------------|---|---|--------------|---------------|--------------|
| | | Soil type I
(Liberia, Africa) | Soil type II
(Nevada desert) | Soil type III
(lava clay, Hawaii) | Soil type IV
(beach sand,
Pensacola, Fla) | Soil type I | Soil type II | Soil type III | Soil type IV |
| DELTA/5 | Low | 200-550 | 450-800 | 700-1,150 | 0-100 | 5-100 | 40-940 | 450-11,000 | 0-5 |
| | High | 0-500 | 400-800 | 700-1,150 | 0 | 0-35 | 15-275 | 140-3,300 | 0 |
| ECHO/10 | Low | 300-600 | 500-900 | 800-1,350 | 0-250 | 10-200 | 75-1,850 | 900-22,200 | 0-5 |
| | High | 50-550 | 400-850 | 750-1,350 | 0 | 5-45 | 20-390 | 200-4,680 | 0 |
| FOXTROT/20 | Low | 350-750 | 600-1,000 | 900-1,400 | 0-300 | 15-310 | 120-2,800 | 1,350-33,600 | 0-10 |
| | High | 50-700 | 500-950 | 850-1,400 | 0 | 5-60 | 25-530 | 260-2,360 | 0 |
| GOLF/50 | Low | 500-800 | 700-1,150 | 1,050-1,550 | 0-450 | 25-610 | 220-5,500 | 2,640-66,000 | 0-15 |
| | High | 250-700 | 550-1,100 | 1,000-1,500 | 0-50 | 5-55 | 20-475 | 230-5,700 | 0-5 |
| HOTEL/100 | Low | 550-900 | 800-1,250 | 1,150-1,650 | 0-500 | 40-990 | 360-9,000 | 4,320-108,000 | 0-25 |
| | High | 50-750 | 600-1,150 | 1,050-1,600 | 0 | 5-35 | 15-310 | 150-3,720 | 0 |
| INDIA/200 | Low | 450-950 | 750-1,300 | 1,200-1,800 | 0-400 | 15-370 | 135-3,300 | 1,590-39,600 | 0-10 |
| | High | 0-800 | 550-1,200 | 1,100-1,700 | 0 | 0-30 | 15-260 | 125-3,120 | 0 |
| JULIETT/500 | Low | 500-1,050 | 900-1,450 | 1,350-1,900 | 0-500 | 15-280 | 100-2,500 | 1,200-30,000 | 0-10 |
| | High | 0-750 | 450-1,200 | 1,100-1,750 | 0 | 0-10 | 5-90 | 45-1,080 | 0 |
| KILO/1,000 | Low | 550-1,200 | 950-1,550 | 1,400-2,000 | 0-450 | 10-220 | 80-2,000 | 960-24,000 | 0-10 |
| | High | 0-700 | 50-1,250 | 1,050-1,750 | 0 | 0-10 | 5-50 | 25-580 | 0 |

NOTE: For description of chemical composition and effects of variations in chemical composition in soil types, see FM 101-31-1, app III, annex F.

Figure 9.7a.

TREE BLOWDOWN (See note.) All distances in meters

| Yield
KT | OBSTACLES TO MOVEMENT | | | | | | | CASUALTIES TO
EXPOSED PERSONNEL | | |
|-------------|--------------------------------------|------------|-------------|------------|-----------------------------|---------------------|----------------------|------------------------------------|---------------------|----------------------|
| | Foot and wheeled
vehicle movement | | | | Tracked vehicle
movement | | | | | |
| | Type
I | Type
II | Type
III | Type
IV | Type
I | Types
II, IVa(d) | Types
III, IVa(f) | Type
I | Types
II, IVa(d) | Types
III, IVa(f) |
| DELTA/5 | 600 | 800 | 900 | 1,400 | 600 | 800 | 900 | 400 | 600 | 600 |
| ECHO/10 | 750 | 1,000 | 1,100 | 1,900 | 750 | 1,000 | 1,100 | 600 | 800 | 900 |
| FOXTROT/20 | 1,050 | 1,300 | 1,500 | 2,400 | 1,050 | 1,300 | 1,500 | 750 | 1,000 | 1,150 |
| GOLF/50 | 1,650 | 2,100 | 2,500 | 3,900 | 1,650 | 2,100 | 2,500 | 1,200 | 1,550 | 1,700 |
| HOTEL/100 | 2,000 | 2,600 | 3,100 | 5,000 | 2,000 | 2,600 | 3,100 | 1,700 | 2,000 | 2,250 |
| INDIA/200 | 2,450 | 3,200 | 3,800 | 6,200 | 2,450 | 3,200 | 3,800 | 2,000 | 2,400 | 2,700 |
| JULIETT/500 | 3,750 | 4,800 | 6,000 | 9,400 | 3,750 | 4,800 | 6,000 | 3,150 | 3,600 | 4,200 |
| KILO/1,000 | 5,000 | 6,200 | 7,700 | 12,000 | 5,000 | 6,200 | 7,700 | 4,050 | 4,600 | 5,200 |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 9.7b.

LIGHT AIRCRAFT IN FLIGHT (See note 1.)

| Yield
KT | AIRCRAFT SAFETY RADII—meters
(See note 2.) | | |
|-------------|---|-----------------------|---------------------------|
| | Light fixed
wing | Recon and
obsn hel | Transport and
util hel |
| DELTA/5 | 9,000 | 9,000 | 7,000 |
| ECHO/10 | 10,000 | 10,000 | 9,000 |
| FOXTROT/20 | 13,000 | 13,000 | 11,000 |
| GOLF/50 | 17,000 | 16,000 | 15,000 |
| HOTEL/100 | 22,000 | 21,000 | 18,000 |
| INDIA/200 | 27,000 | 26,000 | 23,000 |
| JULIETT/500 | 35,000 | 34,000 | 31,000 |
| KILO/1,000 | 43,000 | 42,000 | 40,000 |

NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.

2. A buffer distance has been added to these radii of safety.

Figure 9.7c.

CONTINGENT EFFECTS Tables (continued) **Fighter Aircraft**

FIRE AREAS (See note.)

| Yield
KT | HOB | Expected radii for ignition of wildland fuels during fire season—meters | | | | | | | |
|-------------|--------|---|----------|-----------|----------|---|----------|-----------|----------|
| | | Dry climate (25 percent relative humidity) | | | | Damp climate (75 percent relative humidity) | | | |
| | | Class I | Class II | Class III | Class IV | Class I | Class II | Class III | Class IV |
| DELTA/5 | Air | 2,000 | 1,800 | 1,700 | 1,400 | 1,800 | 1,800 | 1,500 | 1,100 |
| | Impact | 1,200 | 1,100 | 1,000 | 800 | 1,100 | 1,100 | 900 | 700 |
| ECHO/10 | Air | 2,600 | 2,400 | 2,200 | 1,800 | 2,400 | 2,400 | 2,100 | 1,500 |
| | Impact | 1,500 | 1,400 | 1,300 | 1,100 | 1,400 | 1,400 | 1,200 | 900 |
| FOXTROT/20 | Air | 3,400 | 3,200 | 2,900 | 2,400 | 3,200 | 3,200 | 2,700 | 2,000 |
| | Impact | 2,000 | 1,900 | 1,700 | 1,400 | 1,900 | 1,900 | 1,500 | 1,200 |
| GOLF/50 | Air | 4,900 | 4,500 | 4,100 | 3,300 | 4,500 | 4,500 | 3,800 | 2,900 |
| | Impact | 2,800 | 2,600 | 2,300 | 2,000 | 2,600 | 2,600 | 2,200 | 1,600 |
| HOTEL/100 | Air | 6,400 | 5,900 | 5,400 | 4,400 | 5,900 | 5,900 | 4,800 | 3,700 |
| | Impact | 3,500 | 3,200 | 3,000 | 2,500 | 3,200 | 3,200 | 2,800 | 2,100 |
| INDIA/200 | Air | 8,300 | 7,700 | 7,000 | 5,800 | 7,700 | 7,700 | 6,400 | 4,800 |
| | Impact | 4,500 | 4,200 | 3,800 | 3,200 | 4,200 | 4,200 | 3,500 | 2,700 |
| JULIETT/500 | Air | 11,900 | 11,000 | 9,900 | 8,200 | 11,000 | 11,000 | 9,200 | 6,900 |
| | Impact | 6,200 | 5,700 | 5,300 | 4,400 | 5,700 | 5,700 | 4,900 | 3,800 |
| KILO/1,000 | Air | 15,600 | 14,200 | 12,900 | 10,700 | 14,200 | 14,200 | 11,900 | 8,900 |
| | Impact | 7,800 | 7,200 | 6,600 | 5,600 | 7,200 | 7,200 | 6,200 | 4,800 |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 9.7d.

CRATER DIMENSIONS (See note.)

| Yield
KT | Approx crater dimensions for various soil types—meters | | | | | | | |
|-------------|--|-------|---|-------|--|-------|---|-------|
| | Hard rock
(granite and
sandstone) | | Soft rock
(dry soil or
soft rock) | | Saturated soil
(water slowly
fills crater) | | Saturated soil
(water rapidly
fills crater) | |
| | Radius | Depth | Radius | Depth | Radius | Depth | Radius | Depth |
| DELTA/5 | 27 | 8 | 34 | 10 | 50 | 15 | 67 | 7 |
| ECHO/10 | 34 | 10 | 42 | 12 | 63 | 18 | 84 | 8 |
| FOXTROT/20 | 43 | 11 | 53 | 14 | 80 | 21 | 106 | 10 |
| GOLF/50 | 58 | 14 | 72 | 17 | 108 | 26 | 144 | 12 |
| HOTEL/100 | 73 | 17 | 91 | 21 | 136 | 31 | 182 | 15 |
| INDIA/200 | 92 | 20 | 115 | 24 | 172 | 36 | 229 | 17 |
| JULIETT/500 | 124 | 25 | 155 | 31 | 233 | 46 | 310 | 22 |
| KILO/1,000 | 156 | 29 | 196 | 36 | 293 | 54 | 391 | 26 |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 9.7e.

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CHAPTER 10 TACTICAL BOMBER

10.1 GENERAL

a. *Orientation.* This chapter contains employment data for the nuclear bombs delivered by tactical bombers.

b. *Weapon characteristics.*

(1) *Yield.* The bombs carried by tactical bombers have yields of Hotel/100 KT, India/200 KT, Juliett/500 KT, Kilo/1 MT, Lima/2 MT, and Mike/5 MT.

(2) *Fuzing.*

(a) The fuzing for these bombs provides airburst and impact fuzing options. The airburst option is radar-fuzed and can be set for either high or low airburst; these are the only heights of burst available. Contact backup is provided in all cases where the airburst option is selected. The Hotel/100 KT weapon *only* has, in addition, a subsurface burst capability fuzed by a time delay fuze. This option can be selected only as a primary means of detonation.

(b) The fuzes are preset at the following heights of burst:

| Warhead section | HOB option | HOB (meters) | PE _h (meters) |
|-----------------|------------|--------------|--------------------------|
| Hotel/100 KT | low | 490 | 100 |
| | high | 838 | |
| India/200 KT | low | 677 | 100 |
| | high | 965 | |
| Juliett/500 KT | low | 795 | 100 |
| | high | 1,184 | |
| Kilo/1 MT | low | 910 | 100 |
| | high | 1,400 | |
| Lima/2 MT | low | 1,056 | 100 |
| | high | 1,673 | |
| Mike/5 MT | low | 1,308 | 100 |
| | high | 2,146 | |

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The radius of action for tactical bombers varies depending on the type bomber used. For training purposes only, a maximum radius of action of 1,200 kilometers is assumed. In an actual situation, the delivery unit concerned is consulted to obtain this information.

(2) *Tactical system accuracy.* Horizontal dispersion is dependent on the proficiency of the aircraft pilot and crew and the technique of delivery. The CEP used in this chapter for tactical bomber delivery is an average value for well-trained crews. A CEP of 600 meters has been used in the computation of the weapon selection tables. The vertical probable error is 100 meters.

(3) *Response time.* The times shown below can be used as a basis for general tactical planning. For detailed tactical planning, the response times should be the actual times obtained from the delivery unit concerned. The times listed below are average times for normal operations after alert. Such factors as distance and routes to the bomb storage area, type of transportation, type of ground handling equipment, and enemy action influence bomb preparation and loading.

| Situation | Time (minutes) | Remarks |
|-----------------|----------------|---|
| I ¹ | 120 | (a) In both situations, flight time must be added to the times shown.
(b) Time may vary in situation I as distance from storage area to aircraft varies. |
| II ² | 20 | |

¹Situation I (ready)—bomb is partially assembled and tested to allow shortest assembly time. The bomb is located in a storage area.

²Situation II (strike)—bomb is assembled and loaded on the aircraft. The aircraft and crew are on ground alert.

(4) *Special considerations.* The target analyst coordinates closely with the liaison officer representing the delivery unit concerned. The analyst needs to know the CEP involved, because CEP varies depending on the crew assigned and the delivery technique used to attack the target. (See para 10.1c(2), above, for assumption made for the weapon selection tables that follow.) When an airburst fuzing option is selected, the fire mission states the desired radar HOB setting as high or low. When an impact fuzing option is selected, the fire mission specifies HOB impact. When employing these weapons, a fallout prediction is always made. When a subsurface burst fuzing option is selected for the Hotel/100 KT weapon, the fire mission specifies HOB subsurface.

EXPOSED Personnel Targets Tactical Bomber

| Yield | HOB option
(HOB-meters) | Minimum
safe
distance
(negligible
risk
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | Probable
minimum
R _D

(meters) | | Offset
distance
d ₀

(meters) | | |
|-------|----------------------------|---|--|--------|--------|--------|--------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|---|--------|--|---------|----------|
| | | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | |
| | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| KT | (See note) | | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200 | Prompt | Delayed | (meters) |
| 100 | High (838) | 12,600 | .5/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .5/.7 | .5/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,125 | 2,125 | 1,100 |
| | Low (490) | 12,600 | .5/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .5/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,150 | 2,150 | (all |
| | Impact | *7,600 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | | 1,725 | 1,725 | yields) |
| 200 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200 | 5,600 | 6,000 | 3,200 | 3,600 | 4,000 | 4,400 | 4,800 | 5,200 | 5,600 | 6,000 | | | |
| | High (965) | 16,500 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 2,850 | 2,850 | |
| | Low (677) | 16,500 | .6/.7 | .5/.6 | .4/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .6/.7 | .5/.6 | .4/.5 | .4/.4 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | 2,875 | 2,875 | |
| | Impact | *9,500 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.2 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.2 | 2,275 | 2,275 | |
| 500 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | 8,800 | 9,600 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | 8,800 | 9,600 | | | |
| | High (1,184) | 23,000 | .7/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 4,150 | 4,150 | |
| | Low (795) | 23,000 | .7/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .7/.8 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 4,150 | 4,150 | |
| | Impact | *12,700 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 3,300 | 3,300 | |
| 1,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 6,400 | 7,200 | 8,000 | 8,800 | 9,600 | 10,400 | 11,200 | 12,000 | 6,400 | 7,200 | 8,000 | 8,800 | 9,600 | 10,400 | 11,200 | 12,000 | | | |
| | High (1,400) | 29,600 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 5,475 | 5,475 | |
| | Low (910) | 29,600 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | 5,450 | 5,450 | |
| | Impact | *16,300 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 4,350 | 4,350 | |
| 2,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 8,000 | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | | 8,000 | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | | | | |
| | High (1,673) | 38,200 | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.8 | .5/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 7,225 | 7,225 | |
| | Low (1,056) | 38,200 | .7/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .7/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 7,175 | 7,175 | |
| | Impact | *21,300 | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | | | .4/.5 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | | | 5,725 | 5,725 | |
| 5,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | 22,000 | 24,000 | 26,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | 22,000 | 24,000 | 26,000 | | | |
| | High (2,146) | 56,000 | .6/.7 | .5/.5 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.5 | .4/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 10,425 | 10,425 | |
| | Low (1,308) | 53,700 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .6/.7 | .5/.5 | .3/.4 | .3/.3 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 10,325 | 10,325 | |
| | Impact | *30,400 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | | 8,250 | 8,250 | |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
Low airburst—Precludes fallout.
Impact burst—Produces fallout.

*Initial effects only. Fallout governs.

Figure 10.1.

PROTECTED Personnel Targets Tactical Bomber

| Yield | HOB option
(HOB-meters) | Minimum
safe
distance
(negligible
risk
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Probable
minimum
R _D
(meters) | | Offset
distance
d _o
(meters) |
|-------|----------------------------|---|--|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|---|---------|--|
| | | | PROMPT CASUALTIES | | | | | | | | DELAYED CASUALTIES | | | | | | | | | | |
| | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | 2,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | Prompt | Delayed | |
| KT | (See note) | (meters) | | | | | | | | | | | | | | | | | | | |
| 100 | High (838) | 12,600 | .2/.5 | .2/.4 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.2 | .0/.1 | .3/.6 | .3/.5 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | | 650 | 800 | 1,100 |
| | Low (490) | 12,600 | .2/.6 | .2/.5 | .2/.4 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .5/.7 | .4/.6 | .3/.5 | .2/.3 | .2/.3 | .1/.2 | .1/.1 | | 775 | 1,125 | (all
yields) |
| | Impact | *7,600 | .4/.7 | .4/.6 | .3/.5 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 1,075 | 1,300 | |
| 200 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 400 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | | | |
| | High (965) | 16,500 | .4/.8 | .4/.7 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.1 | | .4/.7 | .3/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | | 950 | 950 | |
| | Low (677) | 16,500 | .5/.7 | .4/.7 | .3/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.1 | | .5/.8 | .4/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .0/.1 | 1,050 | 1,150 | |
| | Impact | *9,500 | .6/.8 | .4/.8 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .7/.9 | .5/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,150 | 1,450 | |
| 500 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | | | |
| | High (1,184) | 23,000 | .6/.9 | .5/.8 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .6/.9 | .5/.8 | .4/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,400 | 1,400 | |
| | Low (795) | 23,000 | .6/.9 | .5/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .7/.9 | .5/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | 1,350 | 1,425 | |
| | Impact | *12,700 | .8/.9 | .6/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .8/.9 | .6/.8 | .6/.7 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | 1,675 | 1,675 | |
| 1,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | | | |
| | High (1,400) | 29,600 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | 1,800 | 1,800 | |
| | Low (910) | 29,600 | .7/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .7/.9 | .6/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 1,700 | 1,700 | |
| | Impact | *16,300 | .8/.9 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .8/.9 | .7/.9 | .6/.8 | .5/.7 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | 2,100 | 2,100 | |
| 2,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 1,600 | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 1,600 | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | | | |
| | High (1,673) | 38,200 | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | .8/.9 | .6/.7 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 2,225 | 2,225 | |
| | Low (1,056) | 38,200 | .8/.9 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | .8/.9 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 2,150 | 2,150 | |
| | Impact | *21,300 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.1 | .1/.1 | .9/.9 | .7/.8 | .5/.6 | .4/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 2,650 | 2,650 | |
| 5,000 | | | Target radius (meters) | | | | | | | | Target radius (meters) | | | | | | | | | | |
| | | | 2,000 | 2,800 | 3,600 | 4,400 | 5,200 | 6,000 | 6,800 | 7,600 | 2,000 | 2,800 | 3,600 | 4,400 | 5,200 | 6,000 | 6,800 | 7,600 | | | |
| | High (2,146) | 56,000 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | 2,925 | 2,925 | |
| | Low (1,308) | 53,700 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .9/.9 | .7/.8 | .5/.6 | .4/.5 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,900 | 2,900 | |
| | Impact | *30,400 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .9/.9 | .8/.9 | .7/.8 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | 3,600 | 3,600 | |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
Low airburst—Precludes fallout.
Impact burst—Produces fallout.

*Initial effects only. Fallout governs.

Figure 10.2.

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MATERIEL Targets Tactical Bomber

| Yield | HOB option
(HOB—meters) | Minimum
safe
distance
(negligible
risk,
UnW Ex)
(meters) | FRACTION OF TARGET COVERED
In the column under each target radius, the first figure is
the probable minimum coverage; the second figure is the average coverage. | | | | | | | | | | | | | | | | Offset
distance
d _o
(meters) | | |
|-------|----------------------------|--|--|--------|--------|--------|--------|--------|--------|--------|--|------------------------|-------|-------|-------|-------|-------|--------|--|--|-------|
| | | | WHEELED VEHICLES | | | | | | | | TANKS AND ARTILLERY | | | | | | | | | | |
| | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| KT | (See note) | | 800 | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | | 200 | 400 | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | | |
| 100 | High (838) | 12,600 | .0/.5 | .0/.4 | .0/.3 | .0/.2 | .0/.1 | | | | 125 | .0/.0 | | | | | | | | | 0 |
| | Low (490) | 12,600 | .7/.8 | .5/.8 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 1,325 | .0/.4 | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 200 |
| | Impact | *7,600 | .4/.7 | .4/.6 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | | 1,100 | .0/.6 | .1/.6 | .1/.5 | .1/.5 | .2/.4 | .2/.3 | .2/.3 | .1/.2 | | 750 |
| 200 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | 4,400 | | 600 | 800 | 1,000 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 | | |
| | High (965) | 16,500 | .1/.5 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | 575 | .0/.1 | | | | | | | | | 0 |
| | Low (677) | 16,500 | .6/.8 | .5/.7 | .4/.6 | .3/.5 | .2/.4 | .2/.3 | .1/.2 | .1/.2 | 1,725 | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .0/.2 | .0/.2 | .0/.1 | | | 250 |
| | Impact | *9,500 | .5/.6 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 1,450 | .3/.7 | .3/.6 | .3/.6 | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .2/.2 | | 975 |
| 500 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 4,000 | | |
| | High (1,184) | 23,000 | .5/.7 | .3/.5 | .2/.4 | .1/.3 | .0/.2 | .0/.1 | | | 1,750 | .0/.1 | | | | | | | | | 0 |
| | Low (795) | 23,000 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 2,725 | .3/.6 | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 775 |
| | Impact | *12,700 | .5/.7 | .4/.4 | .2/.3 | .1/.2 | .1/.1 | | | | 2,100 | .5/.8 | .4/.6 | .3/.5 | .3/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 1,400 |
| 1,000 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 2,400 | 3,600 | 4,800 | 6,000 | 7,200 | 8,400 | 9,600 | 10,800 | | 1,800 | 2,400 | 3,000 | 3,600 | 4,200 | 4,800 | 5,400 | 6,000 | | |
| | High (1,400) | 29,600 | .8/.9 | .6/.8 | .4/.5 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 3,100 | .0/.2 | .0/.1 | | | | | | | | 250 |
| | Low (910) | 29,600 | .9/.9 | .8/.9 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | 3,750 | .4/.7 | .3/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | | | 1,325 |
| | Impact | *16,300 | .8/.9 | .5/.6 | .3/.3 | .2/.2 | .1/.2 | .1/.1 | | | 2,775 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | | 1,850 |
| 2,000 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 3,600 | 4,800 | 6,000 | 7,200 | 8,400 | 9,600 | 10,800 | 12,000 | | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | 7,200 | 8,000 | | |
| | High (1,673) | 38,200 | .8/.9 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | 4,350 | .0/.2 | .0/.1 | | | | | | | | 650 |
| | Low (1,056) | 38,200 | .9/.9 | .8/.9 | .6/.7 | .4/.5 | .3/.4 | .2/.3 | .2/.2 | .1/.2 | 5,100 | .6/.8 | .4/.6 | .2/.4 | .1/.3 | .1/.2 | .1/.2 | .0/.1 | | | 2,075 |
| | Impact | *21,300 | .7/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | 3,675 | .6/.8 | .5/.6 | .3/.4 | .2/.3 | .1/.2 | .1/.2 | .1/.1 | | | 2,450 |
| 5,000 | | | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | Target radius (meters) | | | | | | | | Prob min
R _D
(meters) | |
| | | | 9,600 | 10,800 | 12,000 | 13,200 | 14,400 | 15,600 | 16,800 | 18,000 | | 3,600 | 4,800 | 6,000 | 7,200 | 8,400 | 9,600 | 10,800 | 12,000 | | |
| | High (2,146) | 56,000 | .4/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | .1/.2 | .1/.1 | 6,550 | .1/.3 | .0/.2 | .0/.1 | | | | | | | 1,425 |
| | Low (1,308) | 53,700 | .6/.6 | .4/.5 | .3/.4 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 7,575 | .8/.9 | .5/.7 | .3/.5 | .2/.3 | .1/.3 | .1/.2 | .1/.2 | .1/.1 | | 3,650 |
| | Impact | *30,400 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.1 | | | | 5,300 | .7/.8 | .5/.5 | .3/.4 | .2/.2 | .1/.2 | .1/.1 | | | | 3,525 |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.
Low airburst—Precludes fallout.
Impact burst—Produces fallout.
*Initial effects only. Fallout governs.

Figure 10.3.

TAC
BMR 1

Troop Safety Distances—Meters **Tactical Bomber**

| Range | Yield | Height of burst option | Minimum Distance Required for Troop Vulnerability and Degree of Risk Shown | | | | | | | | |
|-----------------------------|-----------------|------------------------|--|----------|-----------|----------------|----------|-----------|------------------|----------|-----------|
| | | | Unwarned Exposed | | | Warned Exposed | | | Warned Protected | | |
| | | | NEG Risk | MOD Risk | EMER Risk | NEG Risk | MOD Risk | EMER Risk | NEG Risk | MOD Risk | EMER Risk |
| Range of aircraft is 800 km | HOTEL/ 100 KT | High | 12,600 | 10,200 | 8,400 | 8,400 | 5,900 | 4,900 | 5,400 | 4,100 | 3,100 |
| | | Low | 12,600 | 10,200 | 8,500 | 8,500 | 5,900 | 4,900 | 4,900 | 3,800 | 2,800 |
| | | Impact ¹ | 7,600 | 6,200 | 5,400 | 5,400 | 3,900 | 3,400 | 4,200 | 3,400 | 2,900 |
| | INDIA/ 200 KT | High | 16,500 | 13,100 | 11,700 | 11,100 | 7,700 | 6,200 | 6,300 | 4,800 | 3,500 |
| | | Low | 16,500 | 13,100 | 11,700 | 11,100 | 7,700 | 6,300 | 5,800 | 4,500 | 3,200 |
| | | Impact ¹ | 9,500 | 7,900 | 6,900 | 6,700 | 4,900 | 4,100 | 4,900 | 4,000 | 3,000 |
| | JULIETT/ 500 KT | High | 23,000 | 19,000 | 16,800 | 15,600 | 10,600 | 8,600 | 7,700 | 5,800 | 4,100 |
| | | Low | 23,000 | 19,000 | 16,800 | 15,600 | 10,600 | 8,600 | 7,200 | 5,500 | 3,600 |
| | | Impact ¹ | 12,700 | 10,900 | 9,700 | 9,100 | 6,500 | 5,400 | 6,200 | 5,000 | 3,600 |
| | KILO/ 1,000 KT | High | 29,600 | 25,000 | 22,100 | 20,200 | 13,900 | 11,200 | 9,200 | 6,900 | 4,700 |
| | | Low | 29,600 | 25,000 | 22,100 | 20,200 | 13,900 | 11,200 | 8,600 | 6,500 | 4,200 |
| | | Impact ¹ | 16,300 | 14,000 | 12,500 | 11,400 | 8,200 | 6,800 | 7,500 | 6,000 | 4,300 |
| | LIMA/ 2,000 KT | High | 38,200 | 32,700 | 28,600 | 25,900 | 17,900 | 14,800 | 11,100 | 8,200 | 5,400 |
| | | Low | 38,200 | 32,700 | 28,600 | 25,900 | 17,900 | 14,800 | 10,400 | 7,800 | 4,800 |
| | | Impact ¹ | 21,300 | 17,900 | 16,500 | 14,700 | 10,400 | 8,400 | 9,100 | 7,200 | 4,900 |
| | MIKE/ 5,000 KT | High | 56,000 | 46,900 | 39,600 | 36,800 | 26,300 | 21,300 | 14,400 | 10,600 | 6,700 |
| | | Low | 53,700 | 45,000 | 38,100 | 35,300 | 25,300 | 20,500 | 13,300 | 10,000 | 6,100 |
| | | Impact ¹ | 30,400 | 25,900 | 22,700 | 20,400 | 14,900 | 12,000 | 12,000 | 9,400 | 6,400 |

NOTE: The troop safety distances include the safety radius for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly disposition. See figure 10.5 for special friendly troop orientations.

¹Initial effects only. Fallout governs.

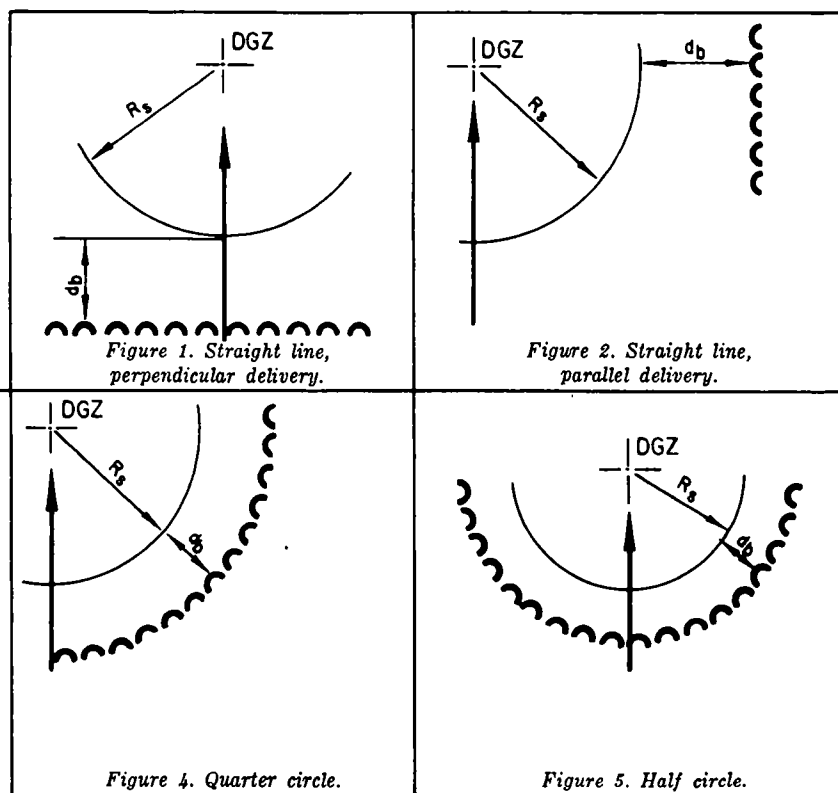
Figure 10.4.

SUPPLEMENTARY TROOP SAFETY Tables **Tactical Bomber**

The troop safety distances in figure 10.4 are based on the friendly troop orientation shown in figure 1, below. The circular delivery pattern of the tactical bomber may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

Special Troop Safety Orientations

LEGEND
 DGZ - Desired ground zero
 R_s - Safety radius.
 d_b - Buffer distance.
 ~~~~~ - Friendly troops.  
 → - Direction of fire.



When the special friendly troop orientations shown above, occur, the tabulated troop safety distances in figure 10.4 must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options—All Yields |                                                |                                           |                              |                           |
|----------------------------------------|------------------------------------------------|-------------------------------------------|------------------------------|---------------------------|
| Range<br>(meters)                      | Straight line,<br>parallel delivery<br>(fig 2) | Straight line,<br>45° delivery<br>(fig 3) | Quarter<br>circle<br>(fig 4) | Half<br>circle<br>(fig 5) |
| All<br>ranges                          | 0                                              | 0                                         | +200                         | +400                      |

Figure 10.5.

TAC  
BMR 1

CASUALTY and DAMAGE Tables  
Tactical Bomber

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15    | 16    | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|-------|-------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in l-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |       |       |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |       |       | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod   | Emer  | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,350 |                   | 975     | 0                   | 0       |                    | 800     |                                 |         | 2,650                             | 2,650   | 4,600                    | 4,600   | 11,325            | 8,900 | 7,575 | 7,100           | 4,475 | 3,400 | 4,625             | 3,150 | 1,350 |
| 1,300 |                   | 1,025   | 125                 | 125     | 0                  | 875     |                                 |         | 2,700                             | 2,700   | 4,550                    | 4,550   | 11,325            | 8,900 | 7,600 | 7,100           | 4,475 | 3,425 | 4,575             | 3,125 | 1,475 |
| 1,250 |                   | 1,100   | 250                 | 375     | 200                | 950     |                                 |         | 2,700                             | 2,700   | 4,500                    | 4,500   | 11,350            | 8,900 | 7,600 | 7,125           | 4,500 | 3,425 | 4,525             | 3,100 | 1,600 |
| 1,200 |                   | 1,150   | 375                 | 500     | 400                | 1,000   |                                 |         | 2,700                             | 2,700   | 4,450                    | 4,450   | 11,350            | 8,925 | 7,600 | 7,125           | 4,500 | 3,450 | 4,475             | 3,075 | 1,725 |
| 1,150 | 0                 | 1,200   | 475                 | 625     | 525                | 1,075   |                                 | 0       | 2,675                             | 2,675   | 4,400                    | 4,400   | 11,350            | 8,925 | 7,625 | 7,125           | 4,525 | 3,475 | 4,400             | 3,025 | 1,825 |
| 1,100 | 1,950             | 1,950   | 550                 | 700     | 625                | 1,125   |                                 | 175     | 2,650                             | 2,650   | 4,300                    | 4,300   | 11,350            | 8,925 | 7,625 | 7,125           | 4,525 | 3,475 | 4,325             | 2,975 | 1,875 |
| 1,050 | 2,100             | 2,100   | 625                 | 775     | 700                | 1,175   |                                 | 375     | 2,600                             | 2,600   | 4,250                    | 4,250   | 11,350            | 8,950 | 7,625 | 7,150           | 4,550 | 3,500 | 4,250             | 2,925 | 1,850 |
| 1,000 | 2,150             | 2,150   | 675                 | 825     | 775                | 1,200   |                                 | 500     | 2,600                             | 2,600   | 4,150                    | 4,150   | 11,350            | 8,950 | 7,625 | 7,150           | 4,550 | 3,525 | 4,175             | 2,875 | 1,825 |
| 950   | 2,175             | 2,175   | 725                 | 900     | 825                | 1,250   |                                 | 575     | 2,575                             | 2,575   | 4,050                    | 4,050   | 11,350            | 8,950 | 7,650 | 7,150           | 4,575 | 3,525 | 4,100             | 2,825 | 1,800 |
| 900   | 2,175             | 2,175   | 775                 | 950     | 900                | 1,275   | 0                               | 650     | 2,525                             | 2,525   | 4,000                    | 4,000   | 11,375            | 8,950 | 7,650 | 7,175           | 4,575 | 3,550 | 4,025             | 2,775 | 1,775 |
| 850   | 2,175             | 2,175   | 800                 | 1,000   | 950                | 1,325   | 175                             | 725     | 2,475                             | 2,475   | 3,900                    | 3,900   | 11,375            | 8,950 | 7,650 | 7,175           | 4,575 | 3,550 | 3,950             | 2,725 | 1,725 |
| 800   | 2,175             | 2,175   | 825                 | 1,025   | 975                | 1,350   | 350                             | 775     | 2,450                             | 2,450   | 3,800                    | 3,800   | 11,375            | 8,950 | 7,650 | 7,175           | 4,600 | 3,575 | 3,850             | 2,675 | 1,675 |
| 775   | 2,175             | 2,175   | 825                 | 1,050   | 1,000              | 1,350   | 400                             | 800     | 2,425                             | 2,425   | 3,800                    | 3,800   | 11,375            | 8,975 | 7,650 | 7,175           | 4,600 | 3,575 | 3,800             | 2,650 | 1,650 |
| 750   | 2,175             | 2,175   | 825                 | 1,075   | 1,025              | 1,375   | 450                             | 825     | 2,400                             | 2,400   | 3,750                    | 3,750   | 11,375            | 8,975 | 7,675 | 7,175           | 4,600 | 3,575 | 3,775             | 2,625 | 1,625 |
| 725   | 2,175             | 2,175   | 850                 | 1,075   | 1,050              | 1,400   | 475                             | 850     | 2,375                             | 2,375   | 3,700                    | 3,700   | 11,375            | 8,975 | 7,675 | 7,175           | 4,600 | 3,575 | 3,725             | 2,600 | 1,600 |
| 700   | 2,175             | 2,175   | 850                 | 1,100   | 1,050              | 1,400   | 525                             | 875     | 2,350                             | 2,350   | 3,650                    | 3,650   | 11,400            | 8,975 | 7,675 | 7,200           | 4,625 | 3,600 | 3,675             | 2,600 | 1,575 |
| 675   | 2,175             | 2,175   | 850                 | 1,100   | 1,075              | 1,425   | 550                             | 875     | 2,325                             | 2,325   | 3,650                    | 3,650   | 11,400            | 8,975 | 7,675 | 7,200           | 4,625 | 3,600 | 3,625             | 2,575 | 1,500 |
| 650   | 2,175             | 2,175   | 850                 | 1,125   | 1,075              | 1,425   | 575                             | 900     | 2,300                             | 2,300   | 3,600                    | 3,600   | 11,400            | 8,975 | 7,675 | 7,200           | 4,625 | 3,600 | 3,575             | 2,550 | 1,525 |
| 625   | 2,175             | 2,175   | 850                 | 1,150   | 1,100              | 1,450   | 600                             | 925     | 2,275                             | 2,275   | 3,550                    | 3,550   | 11,400            | 8,975 | 7,675 | 7,200           | 4,625 | 3,600 | 3,550             | 2,525 | 1,525 |
| 600   | 2,175             | 2,175   | 850                 | 1,150   | 1,125              | 1,450   | 625                             | 950     | 2,275                             | 2,275   | 3,550                    | 3,550   | 11,400            | 8,975 | 7,675 | 7,200           | 4,625 | 3,600 | 3,525             | 2,525 | 1,550 |
| 575   | 2,175             | 2,175   | 875                 | 1,175   | 1,125              | 1,450   | 650                             | 950     | 2,250                             | 2,250   | 3,500                    | 3,500   | 11,400            | 9,000 | 7,675 | 7,200           | 4,625 | 3,625 | 3,475             | 2,500 | 1,550 |
| 550   | 2,175             | 2,175   | 900                 | 1,175   | 1,150              | 1,475   | 675                             | 975     | 2,225                             | 2,225   | 3,450                    | 3,450   | 11,400            | 9,000 | 7,675 | 7,200           | 4,625 | 3,625 | 3,450             | 2,475 | 1,550 |
| 525   | 2,175             | 2,175   | 900                 | 1,200   | 1,150              | 1,475   | 700                             | 975     | 2,200                             | 2,200   | 3,450                    | 3,450   | 11,400            | 9,000 | 7,675 | 7,200           | 4,625 | 3,625 | 3,425             | 2,475 | 1,575 |
| 500   | 2,175             | 2,175   | 925                 | 1,200   | 1,150              | 1,475   | 725                             | 1,000   | 2,175                             | 2,175   | 3,400                    | 3,400   | 11,400            | 9,000 | 7,675 | 7,200           | 4,650 | 3,625 | 3,375             | 2,450 | 1,575 |
| 475   | 2,175             | 2,175   | 925                 | 1,225   | 1,175              | 1,500   | 725                             | 1,000   | 2,175                             | 2,175   | 3,350                    | 3,350   | 11,400            | 9,000 | 7,675 | 7,200           | 4,650 | 3,625 | 3,350             | 2,425 | 1,600 |
| 450   | 2,175             | 2,175   | 950                 | 1,225   | 1,175              | 1,500   | 750                             | 1,025   | 2,150                             | 2,150   | 3,350                    | 3,350   | 11,400            | 9,000 | 7,675 | 7,225           | 4,650 | 3,625 | 3,325             | 2,425 | 1,600 |
| 425   | 2,175             | 2,175   | 950                 | 1,225   | 1,200              | 1,500   | 750                             | 1,025   | 2,125                             | 2,125   | 3,300                    | 3,300   | 11,400            | 9,000 | 7,675 | 7,225           | 4,650 | 3,625 | 3,300             | 2,400 | 1,600 |
| 400   | 2,175             | 2,175   | 975                 | 1,250   | 1,200              | 1,525   | 775                             | 1,050   | 2,100                             | 2,100   | 3,250                    | 3,250   | 11,400            | 9,000 | 7,675 | 7,225           | 4,650 | 3,625 | 3,275             | 2,375 | 1,600 |
| 375   | 2,175             | 2,175   | 975                 | 1,250   | 1,200              | 1,525   | 775                             | 1,050   | 2,075                             | 2,075   | 3,250                    | 3,250   | 11,400            | 9,000 | 7,700 | 7,225           | 4,650 | 3,625 | 3,250             | 2,375 | 1,625 |
| 350   | 2,175             | 2,175   | 975                 | 1,250   | 1,225              | 1,525   | 800                             | 1,050   | 2,075                             | 2,075   | 3,200                    | 3,200   | 11,400            | 9,000 | 7,700 | 7,225           | 4,650 | 3,650 | 3,225             | 2,350 | 1,625 |
| 325   | 2,175             | 2,175   | 1,000               | 1,250   | 1,225              | 1,525   | 800                             | 1,075   | 2,050                             | 2,050   | 3,200                    | 3,200   | 11,200            | 8,650 | 7,525 | 7,050           | 4,550 | 3,550 | 3,200             | 2,350 | 1,625 |
| 300   | 2,150             | 2,150   | 1,000               | 1,275   | 1,225              | 1,550   | 825                             | 1,075   | 2,050                             | 2,050   | 3,150                    | 3,150   | 10,850            | 8,400 | 7,275 | 6,825           | 4,400 | 3,450 | 3,150             | 2,325 | 1,625 |
| 275   | 2,150             | 2,150   | 1,000               | 1,275   | 1,225              | 1,550   | 825                             | 1,075   | 2,025                             | 2,025   | 3,150                    | 3,150   | 10,400            | 8,125 | 7,025 | 6,600           | 4,275 | 3,350 | 3,125             | 2,325 | 1,625 |
| 250   | 2,125             | 2,125   | 1,025               | 1,275   | 1,250              | 1,550   | 825                             | 1,075   | 2,025                             | 2,025   | 3,100                    | 3,100   | 10,100            | 7,850 | 6,775 | 6,375           | 4,125 | 3,250 | 3,125             | 2,300 | 1,650 |
| 225   | 2,100             | 2,100   | 1,025               | 1,275   | 1,250              | 1,550   | 850                             | 1,100   | 2,000                             | 2,000   | 3,100                    | 3,100   | 9,800             | 7,550 | 6,550 | 6,150           | 3,975 | 3,125 | 3,100             | 2,300 | 1,650 |
| 200   | 2,100             | 2,100   | 1,025               | 1,275   | 1,250              | 1,550   | 850                             | 1,100   | 2,000                             | 2,000   | 3,050                    | 3,050   | 9,400             | 7,250 | 6,300 | 5,925           | 3,825 | 3,025 | 3,075             | 2,275 | 1,650 |
| 175   | 2,075             | 2,075   | 1,025               | 1,300   | 1,250              | 1,550   | 850                             | 1,100   | 1,975                             | 1,975   | 3,050                    | 3,050   | 9,050             | 6,950 | 6,050 | 5,700           | 3,675 | 2,900 | 3,050             | 2,275 | 1,650 |
| 150   | 2,025             | 2,025   | 1,025               | 1,300   | 1,250              | 1,550   | 850                             | 1,100   | 1,950                             | 1,950   | 3,000                    | 3,000   | 8,700             | 6,650 | 5,800 | 5,475           | 3,525 | 2,800 | 3,025             | 2,250 | 1,650 |
| 125   | 2,000             | 2,000   | 1,050               | 1,300   | 1,250              | 1,575   | 875                             | 1,100   | 1,925                             | 1,925   | 3,000                    | 3,000   | 8,350             | 6,375 | 5,550 | 5,225           | 3,375 | 2,700 | 3,000             | 2,250 | 1,650 |
| 100   | 1,950             | 1,950   | 1,050               | 1,300   | 1,250              | 1,575   | 875                             | 1,100   | 1,925                             | 1,925   | 2,950                    | 2,950   | 7,975             | 6,100 | 5,300 | 5,000           | 3,250 | 2,600 | 2,975             | 2,225 | 1,650 |
| 75    | 1,900             | 1,900   | 1,050               | 1,300   | 1,275              | 1,575   | 875                             | 1,100   | 1,900                             | 1,900   | 2,950                    | 2,950   | 7,600             | 5,825 | 5,050 | 4,750           | 3,125 | 2,500 | 2,950             | 2,225 | 1,650 |
| 50    | 1,850             | 1,850   | 1,050               | 1,300   | 1,275              | 1,575   | 875                             | 1,125   | 1,900                             | 1,900   | 2,900                    | 2,900   | 7,250             | 5,550 | 4,825 | 4,525           | 2,950 | 2,375 | 2,950             | 2,225 | 1,650 |
| 25    | 1,775             | 1,775   | 1,050               | 1,300   | 1,275              | 1,575   | 875                             | 1,125   | 1,875                             | 1,875   | 2,900                    | 2,900   | 6,825             | 5,275 | 4,600 | 4,325           | 2,825 | 2,250 | 2,925             | 2,200 | 1,650 |
| 0     | 1,700             | 1,700   | 1,050               | 1,300   | 1,275              | 1,575   | 875                             | 1,125   | 1,875                             | 1,875   | 2,900                    | 2,900   | 6,400             | 5,000 | 4,350 | 4,125           | 2,700 | 2,150 | 2,900             | 2,200 | 1,650 |

HOB<sub>10</sub> = 140 mLow HOB<sub>min</sub> = 246 mHigh HOB<sub>min</sub> = 557 mHOB<sub>99</sub> = HOB<sub>10</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>10</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>10</sub> + 1.9 PE<sub>h</sub> m

Figure 10.6a.

**CASUALTY and DAMAGE Tables**  
**Tactical Bomber**  
*All figures in meters*

**HOTEL/100 KT**

| 23             | 24                   | 25                   | 26                  | 27                               | 28                         | 29                    | 30              | 31                     | 32                     | 33                  | 34                       | 35         | 36            | 37      | 38              | 39        | 40          | 41      |
|----------------|----------------------|----------------------|---------------------|----------------------------------|----------------------------|-----------------------|-----------------|------------------------|------------------------|---------------------|--------------------------|------------|---------------|---------|-----------------|-----------|-------------|---------|
| HOB            | Mod dam wheeled vehs | Mod Dam tks and arty | Severe dam sup deps | Severe dam radios and elec equip | Severe dam hwy and RR brgs | Severe dam float brgs | 2d-degree burns |                        |                        | 1 PSI over-pressure | Induced Contamination    |            |               |         |                 |           |             |         |
|                |                      |                      |                     |                                  |                            |                       | Exposed skin    | 2-layer summer uniform | 4-layer winter uniform |                     | Intensity at GZ (rad/hr) |            |               |         | 2 rad/hr radius |           |             |         |
|                |                      |                      |                     |                                  |                            |                       |                 |                        |                        |                     | Type I                   | Type II    | Type III      | Type IV | Type I          | Type II   | Type III    | Type IV |
| 1,350          |                      |                      |                     | 0                                |                            |                       | 5,500           | 2,425                  | 725                    | 7,600               |                          |            | 0-15          |         |                 |           | 0-950       |         |
| 1,300          |                      |                      |                     | 100                              |                            |                       | 5,525           | 2,450                  | 825                    | 7,575               |                          | 0          | 0-20          |         |                 | 0         | 0-1,050     |         |
| 1,250          |                      |                      |                     | 250                              |                            |                       | 5,525           | 2,475                  | 900                    | 7,550               |                          | 0-5        | 0-25          |         |                 | 0-50      | 0-1,100     |         |
| 1,200          |                      |                      |                     | 400                              |                            | 0                     | 5,550           | 2,500                  | 950                    | 7,500               |                          | 0-5        | 0-30          |         |                 | 0-400     | 0-1,150     |         |
| 1,150          |                      |                      |                     | 525                              |                            | 1,550                 | 5,550           | 2,525                  | 1,025                  | 7,475               |                          | 0-5        | 5-45          |         |                 | 0-550     | 50-1,200    |         |
| 1,100          | 0                    |                      |                     | 650                              |                            | 1,650                 | 5,550           | 2,550                  | 1,075                  | 7,425               |                          | 0-5        | 5-60          |         |                 | 0-600     | 350-1,250   |         |
| 1,050          | 50                   |                      |                     | 775                              |                            | 1,675                 | 5,575           | 2,575                  | 1,125                  | 7,400               |                          | 0-10       | 5-80          |         |                 | 0-700     | 500-1,300   |         |
| 1,000          | 200                  |                      |                     | 875                              |                            | 1,675                 | 5,575           | 2,600                  | 1,175                  | 7,350               |                          | 0-10       | 5-120         |         |                 | 0-800     | 600-1,350   |         |
| 950            | 350                  |                      |                     | 950                              | 0                          | 1,675                 | 5,600           | 2,625                  | 1,200                  | 7,325               | 0                        | 0-15       | 10-160        |         | 0               | 0-850     | 650-1,400   |         |
| 900            | 475                  |                      | 0                   | 1,050                            | 1,175                      | 1,675                 | 5,600           | 2,625                  | 1,250                  | 7,275               | 0-5                      | 0-20       | 10-220        |         | 0-50            | 0-900     | 750-1,400   |         |
| 850            | 650                  |                      | 75                  | 1,125                            | 1,200                      | 1,675                 | 5,600           | 2,650                  | 1,275                  | 7,225               | 0-5                      | 0-30       | 15-320        |         | 0-350           | 0-950     | 800-1,450   |         |
| 800            | 950                  | 0                    | 200                 | 1,175                            | 1,225                      | 1,675                 | 5,625           | 2,650                  | 1,300                  | 7,175               | 0-5                      | 5-40       | 20-450        |         | 0-450           | 50-1,000  | 850-1,450   |         |
| 775            | 1,150                | 25                   | 275                 | 1,200                            | 1,250                      | 1,675                 | 5,625           | 2,675                  | 1,325                  | 7,150               | 0-5                      | 5-45       | 25-530        |         | 0-500           | 200-1,000 | 850-1,500   |         |
| 750            | 1,200                | 75                   | 325                 | 1,225                            | 1,250                      | 1,675                 | 5,625           | 2,675                  | 1,350                  | 7,125               | 0-10                     | 5-55       | 30-660        |         | 0-550           | 300-1,050 | 900-1,500   |         |
| 725            | 1,250                | 125                  | 400                 | 1,250                            | 1,250                      | 1,675                 | 5,625           | 2,675                  | 1,350                  | 7,100               | 0-10                     | 5-70       | 35-810        |         | 0-550           | 350-1,050 | 900-1,500   |         |
| 700            | 1,300                | 175                  | 450                 | 1,275                            | 1,275                      | 1,675                 | 5,625           | 2,700                  | 1,375                  | 7,075               | 0-10                     | 5-90       | 40-990        |         | 0-600           | 400-1,050 | 950-1,500   |         |
| 675            | 1,325                | 225                  | 475                 | 1,300                            | 1,275                      | 1,675                 | 5,625           | 2,700                  | 1,375                  | 7,050               | 0-15                     | 5-110      | 50-1,230      |         | 0-600           | 450-1,100 | 950-1,550   |         |
| 650            | 1,350                | 275                  | 525                 | 1,325                            | 1,275                      | 1,675                 | 5,625           | 2,700                  | 1,400                  | 7,025               | 0-15                     | 10-130     | 65-1,560      |         | 0-650           | 500-1,100 | 950-1,550   |         |
| 625            | 1,375                | 325                  | 575                 | 1,325                            | 1,275                      | 1,675                 | 5,625           | 2,700                  | 1,400                  | 7,000               | 0-20                     | 10-160     | 80-1,920      |         | 0-700           | 500-1,100 | 1,000-1,550 |         |
| 600            | 1,400                | 350                  | 600                 | 1,350                            | 1,275                      | 1,675                 | 5,650           | 2,725                  | 1,425                  | 6,975               | 0-25                     | 10-200     | 100-2,400     |         | 0-700           | 550-1,100 | 1,000-1,550 |         |
| 575            | 1,425                | 400                  | 625                 | 1,375                            | 1,275                      | 1,675                 | 5,650           | 2,725                  | 1,425                  | 6,950               | 0-30                     | 10-245     | 120-2,940     |         | 0-700           | 600-1,150 | 1,000-1,550 |         |
| 550            | 1,450                | 450                  | 650                 | 1,400                            | 1,300                      | 1,675                 | 5,650           | 2,725                  | 1,425                  | 6,925               | 5-35                     | 15-310     | 150-3,720     |         | 50-750          | 600-1,150 | 1,050-1,600 |         |
| 525            | 1,475                | 500                  | 675                 | 1,425                            | 1,300                      | 1,675                 | 5,650           | 2,725                  | 1,450                  | 6,875               | 5-50                     | 20-410     | 200-4,920     | 0       | 100-750         | 650-1,150 | 1,050-1,600 | 0       |
| 500            | 1,500                | 550                  | 700                 | 1,450                            | 1,300                      | 1,675                 | 5,650           | 2,725                  | 1,450                  | 6,850               | 5-55                     | 20-500     | 240-6,000     | 0-5     | 250-800         | 650-1,150 | 1,050-1,600 | 0-50    |
| 475            | 1,525                | 600                  | 725                 | 1,450                            | 1,300                      | 1,675                 | 5,650           | 2,750                  | 1,450                  | 6,825               | 5-85                     | 30-750     | 360-9,000     | 0-5     | 300-800         | 650-1,150 | 1,050-1,600 | 0-150   |
| 450            | 1,550                | 650                  | 750                 | 1,475                            | 1,300                      | 1,675                 | 5,650           | 2,750                  | 1,475                  | 6,800               | 5-105                    | 40-950     | 460-11,400    | 0-5     | 350-800         | 700-1,150 | 1,100-1,600 | 0-250   |
| 425            | 1,575                | 700                  | 775                 | 1,500                            | 1,300                      | 1,675                 | 5,650           | 2,750                  | 1,475                  | 6,775               | 10-140                   | 50-1,250   | 600-15,000    | 0-5     | 350-800         | 700-1,200 | 1,100-1,600 | 0-300   |
| 400            | 1,600                | 775                  | 800                 | 1,525                            | 1,325                      | 1,675                 | 5,650           | 2,750                  | 1,475                  | 6,750               | 10-190                   | 70-1,650   | 800-19,800    | 0-10    | 400-850         | 700-1,200 | 1,100-1,650 | 0-300   |
| 375            | 1,600                | 850                  | 800                 | 1,550                            | 1,325                      | 1,650                 | 5,650           | 2,750                  | 1,500                  | 6,700               | 10-240                   | 90-2,150   | 1,040-25,800  | 0-10    | 450-850         | 750-1,200 | 1,100-1,650 | 0-350   |
| 350            | 1,625                | 900                  | 825                 | 1,550                            | 1,325                      | 1,650                 | 5,650           | 2,750                  | 1,500                  | 6,675               | 15-300                   | 110-2,650  | 1,280-31,800  | 0-10    | 450-850         | 750-1,250 | 1,100-1,650 | 0-400   |
| 325            | 1,650                | 925                  | 850                 | 1,575                            | 1,325                      | 1,650                 | 5,500           | 2,700                  | 1,500                  | 6,650               | 15-370                   | 140-3,300  | 1,600-39,600  | 0-10    | 450-850         | 750-1,250 | 1,150-1,650 | 0-400   |
| 300            | 1,650                | 950                  | 850                 | 1,575                            | 1,350                      | 1,650                 | 5,325           | 2,625                  | 1,450                  | 6,625               | 20-430                   | 160-3,900  | 1,880-46,800  | 0-15    | 500-850         | 750-1,250 | 1,150-1,650 | 0-400   |
| 275            | 1,650                | 950                  | 875                 | 1,600                            | 1,350                      | 1,650                 | 5,150           | 2,525                  | 1,400                  | 6,575               | 25-520                   | 190-4,700  | 2,260-56,400  | 0-15    | 500-900         | 800-1,250 | 1,150-1,650 | 0-450   |
| 250            | 1,650                | 950                  | 900                 | 1,600                            | 1,350                      | 1,650                 | 4,950           | 2,450                  | 1,375                  | 6,550               | 25-610                   | 220-5,500  | 2,640-66,000  | 0-15    | 500-900         | 800-1,250 | 1,150-1,650 | 0-450   |
| 225            | 1,650                | 975                  | 900                 | 1,600                            | 1,375                      | 1,650                 | 4,775           | 2,350                  | 1,325                  | 6,525               | 30-720                   | 260-6,500  | 3,120-78,000  | 0-20    | 550-900         | 800-1,250 | 1,150-1,650 | 0-450   |
| 200            | 1,625                | 975                  | 925                 | 1,600                            | 1,375                      | 1,650                 | 4,600           | 2,275                  | 1,275                  | 6,475               | 40-990                   | 360-9,000  | 4,320-108,000 | 0-25    | 550-900         | 800-1,250 | 1,150-1,650 | 0-500   |
| 175            | 1,625                | 975                  | 925                 | 1,600                            | 1,375                      | 1,625                 | 4,400           | 2,175                  | 1,225                  | 6,450               | 50-1,210                 | 440-11,000 | 5,280-132,000 | 0-30    | 550-900         | 800-1,250 | 1,150-1,650 | 0-500   |
| 150            | 1,600                | 975                  | 925                 | 1,575                            | 1,350                      | 1,600                 | 4,225           | 2,100                  | 1,175                  | 6,400               | 65-1,540                 | 560-14,000 | 6,720-168,000 | 5-40    | 550-900         | 800-1,250 | 1,150-1,650 | 50-500  |
| 125            | 1,575                | 975                  | 900                 | 1,550                            | 1,325                      | 1,575                 | 4,025           | 2,025                  | 1,150                  | 6,375               |                          |            |               |         |                 |           |             |         |
| 100            | 1,525                | 950                  | 850                 | 1,500                            | 1,300                      | 1,525                 | 3,850           | 1,925                  | 1,100                  | 6,350               |                          |            |               |         |                 |           |             |         |
| 75             | 1,450                | 925                  | 825                 | 1,475                            | 1,250                      | 1,475                 | 3,675           | 1,850                  | 1,050                  | 6,300               |                          |            |               |         |                 |           |             |         |
| 50             | 1,350                | 875                  | 750                 | 1,400                            | 1,175                      | 1,425                 | 3,475           | 1,750                  | 1,000                  | 6,275               |                          |            |               |         |                 |           |             |         |
| 25             | 1,225                | 825                  | 675                 | 1,325                            | 1,100                      | 1,375                 | 3,300           | 1,675                  | 950                    | 6,225               |                          |            |               |         |                 |           |             |         |
| 0              | 1,100                | 750                  | 600                 | 1,250                            | 1,075                      | 1,325                 | 3,100           | 1,575                  | 925                    | 6,200               |                          |            |               |         |                 |           |             |         |
| FALLOUT COVERS |                      |                      |                     |                                  |                            |                       |                 |                        |                        |                     |                          |            |               |         |                 |           |             |         |

TAC  
BMR 1

Figure 10.6a continued.

<sup>1</sup>Tactical Bomber.

CASUALTY and DAMAGE Tables  
Tactical Bomber

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in l-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                    |         |                                |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 1,700 |                   | 750     | 0                   | 0       |                    | 400     |                                |         | 3,350                             | 3,350   | 5,850                    | 5,850   | 15,200            | 11,775 | 10,350 | 9,775           | 6,275 | 4,750 | 5,850             | 4,000 | 1,700 |
| 1,600 | 0                 | 950     | 275                 | 275     |                    | 700     |                                |         | 3,375                             | 3,375   | 5,750                    | 5,750   | 15,200            | 11,800 | 10,375 | 9,800           | 6,300 | 4,800 | 5,725             | 3,925 | 1,925 |
| 1,500 | 175               | 1,100   | 500                 | 500     | 0                  | 900     |                                |         | 3,375                             | 3,375   | 5,600                    | 5,600   | 15,225            | 11,800 | 10,400 | 9,800           | 6,325 | 4,825 | 5,600             | 3,850 | 2,200 |
| 1,400 | 2,450             | 2,450   | 675                 | 675     | 200                | 1,050   |                                |         | 3,350                             | 3,350   | 5,450                    | 5,450   | 15,225            | 11,825 | 10,400 | 9,825           | 6,350 | 4,850 | 5,475             | 3,775 | 2,350 |
| 1,300 | 2,800             | 2,800   | 825                 | 825     | 550                | 1,175   |                                | 0       | 3,300                             | 3,300   | 5,300                    | 5,300   | 15,250            | 11,825 | 10,400 | 9,825           | 6,375 | 4,875 | 5,325             | 3,675 | 2,325 |
| 1,200 | 2,875             | 2,875   | 900                 | 900     | 750                | 1,275   |                                | 325     | 3,250                             | 3,250   | 5,150                    | 5,150   | 15,250            | 11,850 | 10,425 | 9,850           | 6,375 | 4,900 | 5,175             | 3,575 | 2,275 |
| 1,100 | 2,875             | 2,875   | 975                 | 975     | 900                | 1,350   |                                | 575     | 3,175                             | 3,175   | 5,000                    | 5,000   | 15,250            | 11,850 | 10,425 | 9,850           | 6,400 | 4,925 | 5,025             | 3,450 | 2,200 |
| 1,050 | 2,875             | 2,875   | 1,025               | 1,025   | 950                | 1,400   |                                | 675     | 3,150                             | 3,150   | 4,900                    | 4,900   | 15,275            | 11,850 | 10,450 | 9,850           | 6,400 | 4,950 | 4,925             | 3,400 | 2,150 |
| 1,000 | 2,875             | 2,875   | 1,025               | 1,025   | 1,000              | 1,425   | 0                              | 750     | 3,100                             | 3,100   | 4,850                    | 4,850   | 15,275            | 11,850 | 10,450 | 9,850           | 6,425 | 4,950 | 4,850             | 3,350 | 2,100 |
| 950   | 2,875             | 2,875   | 1,050               | 1,100   | 1,050              | 1,475   | 250                            | 800     | 3,050                             | 3,050   | 4,750                    | 4,750   | 15,275            | 11,850 | 10,450 | 9,850           | 6,425 | 4,975 | 4,750             | 3,325 | 2,050 |
| 900   | 2,875             | 2,875   | 1,075               | 1,125   | 1,100              | 1,500   | 400                            | 850     | 3,000                             | 3,000   | 4,700                    | 4,700   | 15,275            | 11,850 | 10,450 | 9,875           | 6,425 | 4,975 | 4,650             | 3,275 | 2,000 |
| 850   | 2,875             | 2,875   | 1,075               | 1,175   | 1,150              | 1,525   | 500                            | 900     | 2,950                             | 2,950   | 4,600                    | 4,600   | 15,275            | 11,850 | 10,450 | 9,875           | 6,425 | 4,975 | 4,550             | 3,250 | 1,925 |
| 800   | 2,875             | 2,875   | 1,050               | 1,200   | 1,175              | 1,550   | 575                            | 950     | 2,900                             | 2,900   | 4,550                    | 4,550   | 15,275            | 11,875 | 10,450 | 9,875           | 6,450 | 5,000 | 4,475             | 3,200 | 1,875 |
| 750   | 2,875             | 2,875   | 1,050               | 1,225   | 1,200              | 1,575   | 625                            | 1,000   | 2,875                             | 2,875   | 4,450                    | 4,450   | 15,275            | 11,875 | 10,475 | 9,875           | 6,450 | 5,000 | 4,425             | 3,175 | 1,825 |
| 700   | 2,875             | 2,875   | 1,050               | 1,275   | 1,225              | 1,600   | 700                            | 1,025   | 2,825                             | 2,825   | 4,400                    | 4,400   | 15,275            | 11,875 | 10,475 | 9,875           | 6,450 | 5,000 | 4,350             | 3,125 | 1,775 |
| 650   | 2,875             | 2,875   | 1,025               | 1,300   | 1,275              | 1,625   | 750                            | 1,075   | 2,775                             | 2,775   | 4,350                    | 4,350   | 15,300            | 11,875 | 10,475 | 9,900           | 6,475 | 5,000 | 4,300             | 3,100 | 1,725 |
| 600   | 2,875             | 2,875   | 1,025               | 1,325   | 1,300              | 1,650   | 775                            | 1,100   | 2,750                             | 2,750   | 4,250                    | 4,250   | 15,300            | 11,875 | 10,475 | 9,900           | 6,475 | 5,025 | 4,225             | 3,050 | 1,700 |
| 550   | 2,875             | 2,875   | 1,025               | 1,325   | 1,300              | 1,650   | 825                            | 1,125   | 2,700                             | 2,700   | 4,200                    | 4,200   | 15,300            | 11,875 | 10,475 | 9,900           | 6,475 | 5,025 | 4,175             | 3,025 | 1,675 |
| 500   | 2,875             | 2,875   | 1,050               | 1,350   | 1,325              | 1,675   | 850                            | 1,150   | 2,650                             | 2,650   | 4,150                    | 4,150   | 15,300            | 11,875 | 10,475 | 9,900           | 6,475 | 5,025 | 4,125             | 3,000 | 1,700 |
| 450   | 2,875             | 2,875   | 1,050               | 1,375   | 1,350              | 1,700   | 875                            | 1,150   | 2,625                             | 2,625   | 4,100                    | 4,100   | 15,250            | 11,800 | 10,300 | 9,750           | 6,450 | 5,025 | 4,050             | 2,975 | 1,700 |
| 400   | 2,850             | 2,850   | 1,075               | 1,375   | 1,375              | 1,700   | 900                            | 1,175   | 2,600                             | 2,600   | 4,050                    | 4,050   | 14,450            | 11,200 | 9,825  | 9,250           | 6,125 | 4,800 | 4,000             | 2,950 | 1,725 |
| 300   | 2,800             | 2,800   | 1,100               | 1,425   | 1,400              | 1,725   | 925                            | 1,200   | 2,500                             | 2,500   | 3,950                    | 3,950   | 12,850            | 9,950  | 8,750  | 8,300           | 5,500 | 4,325 | 3,900             | 2,900 | 1,750 |
| 200   | 2,700             | 2,700   | 1,125               | 1,425   | 1,400              | 1,750   | 950                            | 1,225   | 2,450                             | 2,450   | 3,850                    | 3,850   | 11,400            | 8,850  | 7,700  | 7,400           | 4,850 | 3,850 | 3,825             | 2,850 | 1,750 |
| 100   | 2,525             | 2,525   | 1,150               | 1,450   | 1,425              | 1,750   | 975                            | 1,250   | 2,400                             | 2,400   | 3,800                    | 3,800   | 9,850             | 7,700  | 6,700  | 6,450           | 4,225 | 3,375 | 3,725             | 2,800 | 1,750 |
| 0     | 2,250             | 2,250   | 1,225               | 1,450   | 1,425              | 1,750   | 975                            | 1,250   | 2,350                             | 2,350   | 3,700                    | 3,700   | 8,250             | 6,700  | 5,700  | 5,500           | 3,650 | 2,900 | 3,650             | 2,775 | 1,775 |

HOB<sub>fs</sub> = 327mLow HOB<sub>min</sub> = 310mHigh HOB<sub>min</sub> = 702HOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 10.6b.



**CASUALTY and DAMAGE Tables**  
**Tactical Bomber**  
*All figures in meters*

**INDIA/200 KT**

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III  | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 1,700 |                               |                                  |                              | 0                                            |                                        |                                | 7,300           | 3,250                        | 1,225                        | 9,575                      |                          |            | 0-5          |            |                 |            | 0-600       |            |
| 1,600 |                               |                                  |                              | 250                                          |                                        | 0                              | 7,325           | 3,300                        | 1,350                        | 9,525                      |                          |            | 0-10         |            |                 |            | 0-850       |            |
| 1,500 |                               |                                  |                              | 575                                          |                                        | 2,000                          | 7,350           | 3,350                        | 1,475                        | 9,450                      |                          |            | 0-10         |            |                 |            | 0-1,000     |            |
| 1,400 | 0                             |                                  |                              | 825                                          |                                        | 2,250                          | 7,375           | 3,375                        | 1,575                        | 9,375                      |                          |            | 0-20         |            |                 | 0          | 0-1,150     |            |
| 1,300 | 150                           |                                  |                              | 1,075                                        | 0                                      | 2,275                          | 7,375           | 3,425                        | 1,650                        | 9,300                      |                          | 0-5        | 0-35         |            |                 | 0-400      | 0-1,250     |            |
| 1,200 | 450                           |                                  |                              | 1,275                                        | 1,625                                  | 2,275                          | 7,400           | 3,450                        | 1,725                        | 9,225                      |                          | 0-5        | 5-60         |            |                 | 0-650      | 400-1,350   |            |
| 1,100 | 750                           |                                  | 0                            | 1,425                                        | 1,650                                  | 2,250                          | 7,425           | 3,500                        | 1,800                        | 9,125                      |                          | 0-10       | 5-120        |            |                 | 0-800      | 600-1,450   |            |
| 1,050 | 950                           |                                  | 150                          | 1,500                                        | 1,650                                  | 2,250                          | 7,425           | 3,500                        | 1,825                        | 9,075                      | 0                        | 0-15       | 10-160       |            | 0               | 0-850      | 700-1,500   |            |
| 1,000 | 1,350                         | 0                                | 300                          | 1,550                                        | 1,675                                  | 2,250                          | 7,425           | 3,525                        | 1,850                        | 9,025                      | 0-5                      | 0-20       | 10-230       |            | 0-50            | 0-950      | 800-1,500   |            |
| 950   | 1,575                         | 100                              | 425                          | 1,600                                        | 1,675                                  | 2,250                          | 7,450           | 3,525                        | 1,875                        | 8,975                      | 0-5                      | 0-30       | 15-320       |            | 0-300           | 0-1,000    | 850-1,550   |            |
| 900   | 1,675                         | 200                              | 550                          | 1,650                                        | 1,700                                  | 2,250                          | 7,450           | 3,550                        | 1,900                        | 8,925                      | 0-5                      | 0-40       | 20-440       |            | 0-450           | 0-1,050    | 900-1,600   |            |
| 850   | 1,750                         | 300                              | 650                          | 1,700                                        | 1,725                                  | 2,225                          | 7,450           | 3,550                        | 1,925                        | 8,875                      | 0-10                     | 5-55       | 25-630       |            | 0-550           | 50-1,050   | 950-1,600   |            |
| 800   | 1,800                         | 400                              | 725                          | 1,750                                        | 1,725                                  | 2,225                          | 7,450           | 3,575                        | 1,950                        | 8,825                      | 0-10                     | 5-75       | 40-890       |            | 0-600           | 300-1,100  | 1,000-1,650 |            |
| 750   | 1,875                         | 475                              | 800                          | 1,800                                        | 1,725                                  | 2,225                          | 7,450           | 3,575                        | 1,950                        | 8,775                      | 0-15                     | 5-110      | 55-1,320     |            | 0-700           | 400-1,150  | 1,050-1,650 |            |
| 700   | 1,925                         | 575                              | 850                          | 1,850                                        | 1,725                                  | 2,225                          | 7,475           | 3,600                        | 1,975                        | 8,725                      | 0-20                     | 10-165     | 80-1,980     |            | 0-750           | 500-1,200  | 1,050-1,700 |            |
| 650   | 1,975                         | 675                              | 900                          | 1,875                                        | 1,750                                  | 2,225                          | 7,475           | 3,600                        | 2,000                        | 8,675                      | 0-30                     | 15-260     | 125-3,120    |            | 0-800           | 550-1,200  | 1,100-1,700 |            |
| 600   | 2,025                         | 775                              | 950                          | 1,925                                        | 1,750                                  | 2,200                          | 7,475           | 3,600                        | 2,025                        | 8,600                      | 5-45                     | 20-400     | 200-4,800    | 0          | 50-800          | 600-1,250  | 1,100-1,700 | 0          |
| 550   | 2,050                         | 900                              | 1,000                        | 1,975                                        | 1,775                                  | 2,200                          | 7,475           | 3,625                        | 2,025                        | 8,550                      | 5-70                     | 25-620     | 300-7,440    | 0-5        | 250-850         | 650-1,250  | 1,150-1,750 | 0-50       |
| 500   | 2,100                         | 1,050                            | 1,050                        | 2,000                                        | 1,775                                  | 2,200                          | 7,475           | 3,625                        | 2,050                        | 8,475                      | 5-110                    | 40-1,000   | 480-12,000   | 0-5        | 350-900         | 700-1,300  | 1,150-1,750 | 0-250      |
| 450   | 2,150                         | 1,150                            | 1,075                        | 2,050                                        | 1,800                                  | 2,200                          | 7,450           | 3,625                        | 2,075                        | 8,425                      | 10-210                   | 80-1,900   | 920-22,800   | 0-5        | 400-900         | 750-1,300  | 1,200-1,750 | 0-350      |
| 400   | 2,175                         | 1,225                            | 1,125                        | 2,075                                        | 1,800                                  | 2,200                          | 7,075           | 3,475                        | 2,000                        | 8,350                      | 15-370                   | 135-3,300  | 1,590-39,600 | 0-10       | 450-950         | 750-1,300  | 1,200-1,800 | 0-400      |
| 300   | 2,175                         | 1,275                            | 1,175                        | 2,125                                        | 1,825                                  | 2,075                          | 6,300           | 3,125                        | 1,800                        | 8,225                      | FALLOUT COVERS           |            |              |            |                 |            |             |            |
| 200   | 2,125                         | 1,300                            | 1,200                        | 2,100                                        | 1,775                                  | 2,050                          | 5,550           | 2,725                        | 1,600                        | 8,100                      |                          |            |              |            |                 |            |             |            |
| 100   | 1,950                         | 1,225                            | 1,100                        | 1,950                                        | 1,700                                  | 1,925                          | 4,775           | 2,450                        | 1,425                        | 7,950                      |                          |            |              |            |                 |            |             |            |
| 0     | 1,450                         | 975                              | 800                          | 1,650                                        | 1,350                                  | 1,725                          | 4,025           | 2,100                        | 1,225                        | 7,800                      |                          |            |              |            |                 |            |             |            |

Figure 10.6b continued.

TAC  
BMR 1

CASUALTY and DAMAGE Tables  
Tactical Bomber

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18    | 19    | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|-------|-------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |       |       |                   |       |       |
|       |                   |         |                     |         |                    |         |                                |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |       |       | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod   | Emer  | Neg               | Mod   | Emer  |
| 2,200 |                   | 0       | 275                 | 275     |                    |         |                                |         | 4,650                             | 4,650   | 7,800                    | 7,800   | 21,700            | 17,700 | 15,400 | 14,200          | 9,100 | 7,100 | 7,800             | 5,350 | 2,550 |
| 2,100 |                   | 400     | 525                 | 525     |                    |         | 0                              |         | 4,650                             | 4,650   | 7,800                    | 7,650   | 21,700            | 17,700 | 15,500 | 14,300          | 9,200 | 7,100 | 7,700             | 5,275 | 2,825 |
| 2,000 | 0                 | 750     | 750                 | 750     |                    |         | 200                            |         | 4,650                             | 4,650   | 7,550                    | 7,550   | 21,700            | 17,700 | 15,500 | 14,300          | 8,200 | 7,100 | 7,575             | 5,200 | 3,050 |
| 1,900 | 3,550             | 3,550   | 925                 | 925     |                    |         | 650                            |         | 4,600                             | 4,600   | 7,400                    | 7,400   | 21,700            | 17,700 | 15,500 | 14,300          | 9,200 | 7,200 | 7,425             | 5,125 | 3,175 |
| 1,800 | 4,000             | 4,000   | 1,075               | 1,075   |                    |         | 900                            |         | 4,500                             | 4,500   | 7,250                    | 7,250   | 21,700            | 17,700 | 15,500 | 14,300          | 9,200 | 7,200 | 7,275             | 5,025 | 3,175 |
| 1,700 | 4,100             | 4,100   | 1,175               | 1,175   | 0                  | 1,075   |                                |         | 4,450                             | 4,450   | 7,100                    | 7,100   | 21,700            | 17,700 | 15,500 | 14,300          | 9,200 | 7,200 | 7,150             | 4,925 | 3,125 |
| 1,600 | 4,150             | 4,150   | 1,250               | 1,250   | 400                | 1,225   |                                |         | 4,350                             | 4,350   | 6,900                    | 6,900   | 21,700            | 17,700 | 15,500 | 14,300          | 9,300 | 7,200 | 6,975             | 4,825 | 3,075 |
| 1,500 | 4,150             | 4,150   | 1,325               | 1,325   | 675                | 1,325   |                                | 0       | 4,250                             | 4,250   | 6,750                    | 6,750   | 21,700            | 17,700 | 15,500 | 14,300          | 9,300 | 7,200 | 6,825             | 4,700 | 3,000 |
| 1,400 | 4,150             | 4,150   | 1,400               | 1,400   | 875                | 1,450   |                                | 325     | 4,150                             | 4,150   | 6,600                    | 6,600   | 21,700            | 17,700 | 15,500 | 14,300          | 9,300 | 7,300 | 6,650             | 4,600 | 2,900 |
| 1,300 | 4,150             | 4,150   | 1,425               | 1,425   | 1,000              | 1,525   | 0                              | 625     | 4,100                             | 4,100   | 6,450                    | 6,450   | 21,700            | 17,700 | 15,500 | 14,300          | 9,300 | 7,300 | 6,450             | 4,500 | 2,800 |
| 1,200 | 4,150             | 4,150   | 1,450               | 1,450   | 1,125              | 1,600   | 275                            | 800     | 4,000                             | 4,000   | 6,300                    | 6,300   | 21,800            | 17,700 | 15,600 | 14,400          | 9,300 | 7,300 | 6,275             | 4,425 | 2,675 |
| 1,100 | 4,150             | 4,150   | 1,450               | 1,450   | 1,225              | 1,675   | 400                            | 925     | 3,900                             | 3,900   | 6,200                    | 6,200   | 21,800            | 17,800 | 15,600 | 14,400          | 9,300 | 7,300 | 6,100             | 4,350 | 2,550 |
| 1,050 | 4,150             | 4,150   | 1,425               | 1,425   | 1,275              | 1,725   | 475                            | 1,000   | 3,850                             | 3,850   | 6,100                    | 6,100   | 21,800            | 17,800 | 15,600 | 14,400          | 9,300 | 7,300 | 6,050             | 4,325 | 2,500 |
| 1,000 | 4,150             | 4,150   | 1,425               | 1,425   | 1,300              | 1,750   | 575                            | 1,050   | 3,850                             | 3,850   | 6,050                    | 6,050   | 21,800            | 17,800 | 15,600 | 14,400          | 9,300 | 7,300 | 5,975             | 4,275 | 2,450 |
| 950   | 4,150             | 4,150   | 1,400               | 1,400   | 1,350              | 1,775   | 650                            | 1,075   | 3,800                             | 3,800   | 6,000                    | 6,000   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,300 | 5,900             | 4,250 | 2,400 |
| 900   | 4,150             | 4,150   | 1,400               | 1,400   | 1,375              | 1,800   | 725                            | 1,125   | 3,750                             | 3,750   | 5,900                    | 5,900   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,300 | 5,850             | 4,200 | 2,375 |
| 850   | 4,150             | 4,150   | 1,400               | 1,400   | 1,400              | 1,825   | 775                            | 1,175   | 3,700                             | 3,700   | 5,850                    | 5,850   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,400 | 5,775             | 4,175 | 2,325 |
| 800   | 4,150             | 4,150   | 1,375               | 1,450   | 1,450              | 1,850   | 825                            | 1,200   | 3,700                             | 3,700   | 5,800                    | 5,800   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,400 | 5,725             | 4,150 | 2,300 |
| 750   | 4,150             | 4,150   | 1,375               | 1,475   | 1,475              | 1,850   | 875                            | 1,225   | 3,650                             | 3,650   | 5,750                    | 5,750   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,400 | 5,675             | 4,125 | 2,275 |
| 700   | 4,150             | 4,150   | 1,350               | 1,500   | 1,500              | 1,875   | 925                            | 1,250   | 3,600                             | 3,600   | 5,650                    | 5,650   | 21,800            | 17,800 | 15,600 | 14,400          | 9,400 | 7,400 | 5,600             | 4,075 | 2,275 |
| 650   | 4,150             | 4,150   | 1,350               | 1,525   | 1,600              | 1,900   | 950                            | 1,300   | 3,550                             | 3,550   | 5,600                    | 5,600   | 21,800            | 17,800 | 15,400 | 14,300          | 9,400 | 7,300 | 5,550             | 4,050 | 2,250 |
| 600   | 4,150             | 4,150   | 1,350               | 1,550   | 1,700              | 1,925   | 975                            | 1,325   | 3,550                             | 3,550   | 5,550                    | 5,550   | 20,800            | 17,200 | 15,000 | 13,900          | 9,100 | 7,100 | 5,500             | 4,025 | 2,250 |
| 550   | 4,125             | 4,125   | 1,350               | 1,550   | 1,750              | 1,925   | 1,025                          | 1,350   | 3,500                             | 3,500   | 5,500                    | 5,500   | 19,400            | 16,500 | 14,400 | 13,400          | 8,700 | 6,800 | 5,450             | 4,000 | 2,250 |
| 500   | 4,100             | 4,100   | 1,350               | 1,575   | 1,800              | 1,950   | 1,050                          | 1,350   | 3,450                             | 3,450   | 5,450                    | 5,450   | 18,500            | 15,900 | 13,900 | 12,800          | 8,400 | 6,600 | 5,400             | 3,975 | 2,250 |
| 400   | 4,025             | 4,025   | 1,400               | 1,600   | 1,825              | 1,975   | 1,075                          | 1,375   | 3,400                             | 3,400   | 5,300                    | 5,300   | 17,600            | 14,700 | 12,800 | 11,800          | 7,800 | 6,100 | 5,300             | 3,925 | 2,275 |
| 300   | 3,925             | 3,925   | 1,450               | 1,625   | 1,850              | 2,000   | 1,125                          | 1,400   | 3,350                             | 3,350   | 5,200                    | 5,200   | 16,000            | 13,500 | 11,700 | 10,800          | 7,100 | 5,600 | 5,200             | 3,875 | 2,300 |
| 200   | 3,775             | 3,775   | 1,500               | 1,650   | 1,825              | 2,000   | 1,125                          | 1,425   | 3,300                             | 3,300   | 5,100                    | 5,100   | 14,400            | 12,200 | 10,600 | 9,800           | 6,500 | 5,200 | 5,125             | 3,825 | 2,325 |
| 100   | 3,550             | 3,550   | 1,575               | 1,650   | 1,700              | 2,000   | 1,150                          | 1,450   | 3,250                             | 3,250   | 5,000                    | 5,000   | 13,000            | 11,000 | 9,500  | 8,800           | 5,900 | 4,700 | 5,050             | 3,800 | 2,375 |
| 0     | 3,250             | 3,250   | 1,675               | 1,675   | 1,650              | 2,000   | 1,150                          | 1,450   | 3,250                             | 3,250   | 4,450                    | 4,450   | 11,500            | 9,700  | 8,500  | 7,900           | 5,300 | 4,200 | 4,975             | 3,775 | 2,400 |

HOB<sub>fs</sub> = 445mLow HOB<sub>min</sub> = 420mHigh HOB<sub>min</sub> = 953mHOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> mHOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> mHOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 10.6c.

**CASUALTY and DAMAGE Tables**  
**Tactical Bomber**  
*All figures in meters*

**JULIETT/500 KT**

| 23    | 24                           | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36           | 37         | 38              | 39         | 40          | 41         |
|-------|------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|--------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>veh | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |              |            |                 |            |             |            |
|       |                              |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity of GZ (rad/hr) |            |              |            | 2 rad/hr radius |            |             |            |
|       |                              |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III  | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 2,200 |                              |                                  |                              | 275                                          |                                        | 0                              | 10,475          | 4,925                        | 2,200                        | 12,925                     |                          |            |              |            |                 |            |             |            |
| 2,100 |                              |                                  |                              | 625                                          |                                        | 3,325                          | 10,500          | 4,975                        | 2,300                        | 12,875                     |                          |            |              |            |                 |            |             |            |
| 2,000 |                              |                                  |                              | 925                                          |                                        | 3,350                          | 10,500          | 5,000                        | 2,375                        | 12,800                     |                          |            | 0            |            |                 |            | 0           |            |
| 1,900 | 0                            |                                  |                              | 1,200                                        |                                        | 3,350                          | 10,525          | 5,050                        | 2,450                        | 12,725                     |                          |            | 0-5          |            |                 |            | 0-450       |            |
| 1,800 | 75                           |                                  |                              | 1,450                                        | 0                                      | 3,325                          | 10,550          | 5,075                        | 2,525                        | 12,650                     |                          |            | 0-5          |            |                 |            | 0-750       |            |
| 1,700 | 425                          |                                  |                              | 1,675                                        | 2,150                                  | 3,300                          | 10,575          | 5,125                        | 2,600                        | 12,575                     |                          |            | 0-10         |            |                 |            | 0-1,000     |            |
| 1,600 | 725                          |                                  |                              | 1,875                                        | 2,225                                  | 3,275                          | 10,575          | 5,150                        | 2,675                        | 12,475                     |                          | 0          | 0-15         |            |                 | 0          | 0-1,150     |            |
| 1,500 | 1,050                        |                                  | 0                            | 2,050                                        | 2,250                                  | 3,250                          | 10,600          | 5,175                        | 2,725                        | 12,400                     |                          | 0-5        | 0-25         |            |                 | 0-50       | 0-1,250     |            |
| 1,400 | 1,525                        | 0                                | 300                          | 2,200                                        | 2,275                                  | 3,200                          | 10,600          | 5,200                        | 2,775                        | 12,300                     |                          | 0-5        | 5-50         |            |                 | 0-550      | 50-1,400    |            |
| 1,300 | 2,250                        | 125                              | 600                          | 2,325                                        | 2,300                                  | 3,175                          | 10,625          | 5,225                        | 2,825                        | 12,200                     |                          | 0-10       | 5-85         |            |                 | 0-750      | 550-1,500   |            |
| 1,200 | 2,450                        | 325                              | 825                          | 2,400                                        | 2,325                                  | 3,150                          | 10,625          | 5,250                        | 2,875                        | 12,100                     | 0                        | 0-15       | 10-150       |            | 0               | 0-900      | 750-1,550   |            |
| 1,100 | 2,600                        | 525                              | 1,025                        | 2,525                                        | 2,350                                  | 3,125                          | 10,650          | 5,275                        | 2,900                        | 12,000                     | 0-5                      | 0-25       | 15-290       |            | 0-350           | 0-1,050    | 900-1,650   |            |
| 1,050 | 2,650                        | 625                              | 1,100                        | 2,575                                        | 2,350                                  | 3,125                          | 10,650          | 5,275                        | 2,925                        | 11,950                     | 0-5                      | 0-35       | 20-390       |            | 0-500           | 0-1,100    | 950-1,650   |            |
| 1,000 | 2,700                        | 750                              | 1,175                        | 2,600                                        | 2,350                                  | 3,100                          | 10,650          | 5,300                        | 2,950                        | 11,900                     | 0-10                     | 5-30       | 25-570       |            | 0-600           | 50-1,150   | 1,000-1,700 |            |
| 950   | 2,775                        | 850                              | 1,225                        | 2,650                                        | 2,375                                  | 3,075                          | 10,650          | 5,300                        | 2,950                        | 11,825                     | 0-10                     | 5-65       | 35-780       |            | 0-650           | 300-1,200  | 1,050-1,750 |            |
| 900   | 2,825                        | 950                              | 1,275                        | 2,700                                        | 2,375                                  | 3,050                          | 10,650          | 5,325                        | 2,975                        | 11,775                     | 0-10                     | 5-90       | 45-1,080     |            | 0-750           | 450-1,200  | 1,100-1,750 |            |
| 850   | 2,875                        | 1,050                            | 1,350                        | 2,750                                        | 2,375                                  | 3,050                          | 10,675          | 5,325                        | 3,000                        | 11,725                     | 0-15                     | 10-130     | 65-1,560     |            | 0-800           | 550-1,250  | 1,150-1,800 |            |
| 800   | 2,925                        | 1,150                            | 1,400                        | 2,800                                        | 2,400                                  | 3,025                          | 10,675          | 5,325                        | 3,000                        | 11,675                     | 0-25                     | 10-185     | 90-2,220     |            | 0-850           | 600-1,300  | 1,150-1,800 |            |
| 750   | 2,975                        | 1,275                            | 1,450                        | 2,825                                        | 2,400                                  | 3,000                          | 10,675          | 5,350                        | 3,025                        | 11,600                     | 0-35                     | 15-275     | 135-3,300    | 0          | 0-900           | 700-1,300  | 1,200-1,800 | 0          |
| 700   | 3,025                        | 1,450                            | 1,500                        | 2,875                                        | 2,400                                  | 2,975                          | 10,675          | 5,350                        | 3,025                        | 11,550                     | 5-50                     | 20-420     | 200-4,950    | 0-5        | 50-950          | 750-1,350  | 1,250-1,850 | 0-50       |
| 650   | 3,050                        | 1,600                            | 1,525                        | 2,925                                        | 2,425                                  | 2,975                          | 10,625          | 5,350                        | 3,100                        | 11,475                     | 5-75                     | 30-650     | 320-7,800    | 0-5        | 300-950         | 800-1,350  | 1,250-1,850 | 0-300      |
| 600   | 3,100                        | 1,700                            | 1,575                        | 2,950                                        | 2,450                                  | 2,950                          | 10,250          | 5,175                        | 3,000                        | 11,425                     | 5-110                    | 40-1,000   | 480-12,000   | 0-5        | 400-1,000       | 800-1,400  | 1,300-1,900 | 0-400      |
| 550   | 3,125                        | 1,750                            | 1,625                        | 3,000                                        | 2,450                                  | 2,925                          | 9,875           | 5,000                        | 2,900                        | 11,350                     | 10-175                   | 65-1,550   | 750-18,600   | 0-5        | 450-1,050       | 850-1,400  | 1,300-1,900 | 0-450      |
| 500   | 3,150                        | 1,800                            | 1,650                        | 3,025                                        | 2,450                                  | 2,900                          | 9,475           | 4,825                        | 2,800                        | 11,300                     | 15-280                   | 100-2,500  | 1,200-30,000 | 0-10       | 500-1,050       | 900-1,450  | 1,350-1,900 | 0-500      |
| 400   | 3,125                        | 1,825                            | 1,725                        | 3,075                                        | 2,475                                  | 2,850                          | 8,725           | 4,450                        | 2,575                        | 11,150                     | FALLOUT GOVERNS          |            |              |            |                 |            |             |            |
| 300   | 3,075                        | 1,850                            | 1,750                        | 3,050                                        | 2,425                                  | 2,825                          | 7,950           | 4,100                        | 2,375                        | 11,025                     |                          |            |              |            |                 |            |             |            |
| 200   | 2,975                        | 1,825                            | 1,675                        | 2,925                                        | 2,375                                  | 2,750                          | 7,200           | 3,750                        | 2,175                        | 10,875                     |                          |            |              |            |                 |            |             |            |
| 100   | 2,650                        | 1,700                            | 1,475                        | 2,725                                        | 2,200                                  | 2,625                          | 6,425           | 3,375                        | 1,975                        | 10,750                     |                          |            |              |            |                 |            |             |            |
| 0     | 2,100                        | 1,400                            | 1,150                        | 2,400                                        | 1,900                                  | 2,500                          | 5,675           | 3,025                        | 1,775                        | 10,600                     |                          |            |              |            |                 |            |             |            |

*Figure 10.6c continued.*

KILO/1,000 KT

CASUALTY and DAMAGE Tables  
Tactical Bomber

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18     | 19     | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |        |        |                   |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |        |        | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod    | Emer   | Neg               | Mod   | Emer  |
| 2,200 | 5,350             | 5,350   | 1,425               | 1,425   |                    | 375     |                                 |         | 5,700                             | 5,700   | 9,150                    | 9,150   | 28,300            | 23,700 | 20,800 | 18,900          | 12,500 | 9,800  | 9,075             | 6,275 | 4,000 |
| 2,100 | 5,450             | 5,450   | 1,525               | 1,525   |                    | 750     |                                 |         | 5,650                             | 5,650   | 9,000                    | 9,000   | 28,300            | 23,700 | 20,800 | 18,900          | 12,500 | 9,800  | 8,925             | 6,150 | 3,925 |
| 2,000 | 5,475             | 5,475   | 1,600               | 1,600   |                    | 1,000   |                                 |         | 5,600                             | 5,600   | 8,800                    | 8,800   | 28,300            | 23,700 | 20,800 | 18,900          | 12,500 | 9,800  | 8,775             | 6,050 | 3,850 |
| 1,900 | 5,475             | 5,475   | 1,675               | 1,675   | 0                  | 1,175   |                                 |         | 5,500                             | 5,500   | 8,600                    | 8,600   | 28,300            | 23,700 | 20,800 | 18,900          | 12,600 | 9,800  | 8,600             | 5,925 | 3,775 |
| 1,800 | 5,450             | 5,450   | 1,725               | 1,725   | 375                | 1,325   |                                 |         | 5,400                             | 5,400   | 8,500                    | 8,500   | 28,400            | 23,700 | 20,800 | 18,900          | 12,600 | 9,800  | 8,450             | 5,825 | 3,700 |
| 1,700 | 5,450             | 5,450   | 1,775               | 1,775   | 700                | 1,450   | 0                               | 0       | 5,350                             | 5,350   | 8,350                    | 8,350   | 28,400            | 23,700 | 20,900 | 18,900          | 12,600 | 9,800  | 8,275             | 5,725 | 3,600 |
| 1,600 | 5,475             | 5,475   | 1,800               | 1,800   | 900                | 1,550   | 125                             | 125     | 5,250                             | 5,250   | 8,200                    | 8,200   | 28,400            | 23,700 | 20,900 | 18,900          | 12,600 | 9,900  | 8,975             | 5,650 | 3,500 |
| 1,500 | 5,475             | 5,475   | 1,825               | 1,825   | 1,075              | 1,650   | 350                             | 550     | 5,150                             | 5,150   | 8,050                    | 8,050   | 28,400            | 23,700 | 20,900 | 18,900          | 12,600 | 9,900  | 7,900             | 5,575 | 3,375 |
| 1,400 | 5,475             | 5,475   | 1,825               | 1,825   | 1,200              | 1,725   | 500                             | 775     | 5,050                             | 5,050   | 7,900                    | 7,900   | 28,400            | 23,700 | 20,900 | 19,000          | 12,600 | 9,900  | 7,725             | 5,500 | 3,250 |
| 1,300 | 5,475             | 5,475   | 1,800               | 1,800   | 1,300              | 1,800   | 600                             | 925     | 4,950                             | 4,950   | 7,750                    | 7,750   | 28,400            | 23,700 | 20,900 | 19,000          | 12,600 | 9,900  | 7,575             | 5,425 | 3,125 |
| 1,200 | 5,475             | 5,475   | 1,775               | 1,775   | 1,400              | 1,875   | 700                             | 1,050   | 4,900                             | 4,900   | 7,600                    | 7,600   | 28,400            | 23,800 | 20,900 | 19,000          | 12,600 | 9,900  | 7,450             | 5,350 | 3,025 |
| 1,100 | 5,475             | 5,475   | 1,750               | 1,750   | 1,475              | 1,925   | 775                             | 1,175   | 4,800                             | 4,800   | 7,450                    | 7,450   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 9,900  | 7,325             | 5,275 | 2,950 |
| 1,050 | 5,475             | 5,475   | 1,750               | 1,750   | 1,500              | 1,975   | 825                             | 1,200   | 4,750                             | 4,750   | 7,400                    | 7,400   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 9,900  | 7,250             | 5,250 | 2,925 |
| 1,000 | 5,475             | 5,475   | 1,725               | 1,725   | 1,550              | 2,000   | 850                             | 1,250   | 4,700                             | 4,700   | 7,350                    | 7,350   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 10,000 | 7,200             | 5,225 | 2,900 |
| 950   | 5,475             | 5,475   | 1,725               | 1,725   | 1,675              | 2,025   | 875                             | 1,300   | 4,650                             | 4,650   | 7,250                    | 7,250   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 10,000 | 7,150             | 5,200 | 2,875 |
| 900   | 5,475             | 5,475   | 1,700               | 1,700   | 1,850              | 2,050   | 925                             | 1,325   | 4,600                             | 4,600   | 7,200                    | 7,200   | 28,400            | 23,800 | 20,900 | 19,000          | 12,700 | 10,000 | 7,075             | 5,150 | 2,875 |
| 850   | 5,475             | 5,475   | 1,700               | 1,700   | 2,025              | 2,050   | 975                             | 1,350   | 4,550                             | 4,550   | 7,150                    | 7,150   | 27,800            | 23,500 | 20,600 | 18,800          | 12,600 | 9,900  | 7,025             | 5,125 | 2,850 |
| 800   | 5,475             | 5,475   | 1,700               | 1,700   | 2,150              | 2,150   | 1,000                           | 1,400   | 4,550                             | 4,550   | 7,100                    | 7,100   | 27,200            | 22,900 | 20,000 | 18,300          | 12,300 | 9,600  | 6,975             | 5,100 | 2,850 |
| 750   | 5,450             | 5,450   | 1,700               | 1,700   | 2,250              | 2,250   | 1,050                           | 1,425   | 4,500                             | 4,500   | 7,050                    | 7,050   | 26,500            | 22,200 | 19,500 | 17,800          | 11,900 | 9,400  | 6,925             | 5,075 | 2,850 |
| 700   | 5,450             | 5,450   | 1,700               | 1,700   | 2,300              | 2,300   | 1,075                           | 1,450   | 4,450                             | 4,450   | 7,000                    | 7,000   | 25,800            | 21,600 | 18,900 | 17,300          | 11,600 | 9,100  | 6,875             | 5,050 | 2,850 |
| 650   | 5,425             | 5,425   | 1,700               | 1,700   | 2,350              | 2,350   | 1,125                           | 1,475   | 4,400                             | 4,400   | 6,950                    | 6,950   | 25,000            | 21,000 | 18,300 | 16,800          | 11,300 | 8,900  | 6,825             | 5,025 | 2,850 |
| 600   | 5,400             | 5,400   | 1,725               | 1,725   | 2,375              | 2,375   | 1,150                           | 1,475   | 4,400                             | 4,400   | 6,900                    | 6,900   | 24,300            | 20,400 | 17,800 | 16,300          | 11,000 | 8,600  | 6,775             | 5,000 | 2,850 |
| 500   | 5,325             | 5,325   | 1,750               | 1,750   | 2,425              | 2,425   | 1,200                           | 1,525   | 4,350                             | 4,350   | 6,800                    | 6,800   | 22,700            | 19,100 | 16,700 | 15,300          | 10,300 | 8,100  | 6,675             | 4,950 | 2,875 |
| 400   | 5,225             | 5,225   | 1,800               | 1,800   | 2,450              | 2,450   | 1,225                           | 1,550   | 4,300                             | 4,300   | 6,650                    | 6,650   | 21,200            | 17,800 | 15,600 | 14,300          | 9,600  | 7,600  | 6,575             | 4,900 | 2,900 |
| 300   | 5,075             | 5,075   | 1,850               | 1,850   | 2,450              | 2,450   | 1,250                           | 1,575   | 4,250                             | 4,250   | 6,550                    | 6,550   | 19,800            | 16,500 | 14,500 | 13,300          | 9,000  | 7,100  | 6,500             | 4,850 | 2,925 |
| 200   | 4,850             | 4,850   | 1,925               | 1,925   | 2,375              | 2,375   | 1,275                           | 1,600   | 4,200                             | 4,200   | 6,500                    | 6,500   | 18,300            | 15,200 | 13,400 | 12,200          | 8,300  | 6,600  | 6,400             | 4,825 | 2,950 |
| 100   | 4,600             | 4,600   | 2,000               | 2,000   | 2,200              | 2,225   | 1,300                           | 1,600   | 4,150                             | 4,150   | 6,400                    | 6,400   | 16,700            | 14,000 | 12,200 | 11,200          | 7,600  | 6,100  | 6,325             | 4,775 | 2,975 |
| 0     | 4,275             | 4,275   | 2,100               | 2,100   | 1,850              | 2,225   | 1,300                           | 1,600   | 4,100                             | 4,100   | 6,300                    | 6,300   | 15,100            | 12,800 | 11,300 | 10,200          | 7,000  | 5,600  | 6,250             | 4,750 | 3,025 |

HOB<sub>fs</sub> = 560Low HOB<sub>min</sub> = 530mHigh HOB<sub>min</sub> = 1200mHOB<sub>gg</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> mHOB<sub>gg</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> mHOB<sub>gg</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 10.6d.

**CASUALTY and DAMAGE Tables**  
**Tactical Bomber**  
*All figures in meters*

**KILO/1,000 KT**

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (Rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 2,200 | 375                           |                                  |                              | 2,075                                        | 0                                      | 4,275                          | 13,925          | 6,875                        | 3,600                        | 15,875                     |                          |            | 0           |            |                 |            | 0           |            |
| 2,100 | 700                           |                                  |                              | 2,300                                        | 2,750                                  | 4,250                          | 13,950          | 6,900                        | 3,650                        | 15,800                     |                          |            |             |            |                 |            |             |            |
| 2,000 | 1,000                         |                                  |                              | 2,500                                        | 2,775                                  | 4,200                          | 13,950          | 6,950                        | 3,700                        | 15,725                     |                          |            | 0-5         |            |                 |            | 0-450       |            |
| 1,900 | 1,350                         |                                  | 0                            | 2,675                                        | 2,800                                  | 4,150                          | 13,975          | 6,975                        | 3,750                        | 15,625                     |                          |            | 0-5         |            |                 |            | 0-800       |            |
| 1,800 | 1,775                         | 0                                | 275                          | 2,850                                        | 2,825                                  | 4,100                          | 13,975          | 7,000                        | 3,800                        | 15,525                     |                          |            | 0-10        |            |                 |            | 0-1,000     |            |
| 1,700 | 2,675                         | 25                               | 600                          | 2,975                                        | 2,850                                  | 4,050                          | 14,000          | 7,025                        | 3,850                        | 15,450                     |                          | 0          | 0-15        |            |                 | 0          | 0-1,050     |            |
| 1,600 | 3,075                         | 225                              | 875                          | 3,100                                        | 2,875                                  | 4,000                          | 14,000          | 7,050                        | 3,900                        | 15,350                     |                          | 0-5        | 0-30        |            |                 | 0-400      | 0-1,300     |            |
| 1,500 | 3,275                         | 450                              | 1,125                        | 3,200                                        | 2,900                                  | 3,975                          | 14,025          | 7,075                        | 3,925                        | 15,250                     |                          | 0-5        | 5-50        |            |                 | 0-700      | 50-1,400    |            |
| 1,400 | 3,400                         | 675                              | 1,325                        | 3,300                                        | 2,925                                  | 3,925                          | 14,025          | 7,075                        | 3,975                        | 15,125                     | 0                        | 0-10       | 5-100       |            | 0               | 0-900      | 550-1,500   |            |
| 1,300 | 3,525                         | 875                              | 1,500                        | 3,400                                        | 2,950                                  | 3,900                          | 14,050          | 7,100                        | 4,000                        | 15,025                     | 0-5                      | 0-15       | 10-170      |            | 0-50            | 0-1,050    | 750-1,600   |            |
| 1,200 | 3,650                         | 1,100                            | 1,600                        | 3,500                                        | 2,950                                  | 3,875                          | 14,050          | 7,125                        | 4,025                        | 14,925                     | 0-5                      | 0-25       | 15-300      |            | 0-500           | 0-1,150    | 900-1,700   |            |
| 1,100 | 3,750                         | 1,325                            | 1,725                        | 3,600                                        | 2,975                                  | 3,850                          | 14,050          | 7,125                        | 4,075                        | 14,800                     | 0-10                     | 5-50       | 25-580      |            | 0-700           | 50-1,250   | 1,050-1,750 |            |
| 1,050 | 3,800                         | 1,425                            | 1,800                        | 3,650                                        | 2,975                                  | 3,825                          | 14,050          | 7,150                        | 4,075                        | 14,750                     | 0-10                     | 5-65       | 35-780      |            | 0-800           | 350-13,00  | 1,100-1,800 |            |
| 1,000 | 3,850                         | 1,550                            | 1,850                        | 3,700                                        | 3,000                                  | 3,800                          | 14,075          | 7,150                        | 4,100                        | 14,675                     | 0-15                     | 5-95       | 50-1,140    |            | 0-850           | 500-1,350  | 1,150-1,800 |            |
| 950   | 3,900                         | 1,675                            | 1,900                        | 3,725                                        | 3,000                                  | 3,775                          | 14,075          | 7,150                        | 4,100                        | 14,625                     | 0-15                     | 10-130     | 65-1,560    |            | 0-900           | 600-1,400  | 1,200-1,850 |            |
| 900   | 3,950                         | 1,850                            | 1,950                        | 3,775                                        | 3,025                                  | 3,775                          | 14,075          | 7,175                        | 4,125                        | 14,575                     | 0-20                     | 10-180     | 90-2,160    |            | 0-950           | 650-1,400  | 1,200-1,850 |            |
| 850   | 4,000                         | 2,025                            | 2,000                        | 3,825                                        | 3,025                                  | 3,750                          | 13,800          | 7,075                        | 4,125                        | 14,500                     | 0-30                     | 15-260     | 125-3,120   |            | 0-1,000         | 700-1,450  | 1,250-1,900 |            |
| 800   | 4,050                         | 2,150                            | 2,050                        | 3,875                                        | 3,050                                  | 3,750                          | 13,400          | 6,900                        | 4,025                        | 14,450                     | 5-45                     | 15-370     | 180-4,440   | 0          | 50-1,050        | 800-1,450  | 1,300-1,900 | 0          |
| 750   | 4,100                         | 2,250                            | 2,075                        | 3,900                                        | 3,050                                  | 3,725                          | 13,025          | 6,700                        | 3,925                        | 14,375                     | 5-65                     | 25-550     | 270-6,600   | 0-5        | 300-1,100       | 850-1,500  | 1,300-1,950 | 0-50       |
| 700   | 4,125                         | 2,300                            | 2,125                        | 3,950                                        | 3,050                                  | 3,700                          | 12,625          | 6,525                        | 3,825                        | 14,325                     | 5-95                     | 35-835     | 400-9,900   | 0-5        | 400-1,100       | 900-1,500  | 1,350-1,950 | 0-300      |
| 650   | 4,125                         | 2,350                            | 2,175                        | 3,975                                        | 3,075                                  | 3,675                          | 12,225          | 6,350                        | 3,725                        | 14,250                     | 10-145                   | 55-1,300   | 63 C-15,600 | 0-5        | 500-1,150       | 900-1,550  | 1,350-1,950 | 0-400      |
| 600   | 4,150                         | 2,375                            | 2,200                        | 4,000                                        | 3,075                                  | 3,650                          | 11,850          | 6,150                        | 3,625                        | 14,175                     | 10-220                   | 80-2,000   | 960-24,000  | 0-10       | 550-12,00       | 950-1,550  | 1,400-2,000 | 0-450      |
| 500   | 4,125                         | 2,425                            | 2,275                        | 4,050                                        | 3,075                                  | 3,625                          | 11,050          | 5,775                        | 3,400                        | 14,050                     | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |
| 400   | 4,075                         | 2,450                            | 2,325                        | 4,025                                        | 3,100                                  | 3,575                          | 10,275          | 5,400                        | 3,200                        | 13,925                     |                          |            |             |            |                 |            |             |            |
| 300   | 4,000                         | 2,450                            | 2,275                        | 3,950                                        | 3,075                                  | 3,475                          | 9,475           | 5,050                        | 3,000                        | 13,775                     |                          |            |             |            |                 |            |             |            |
| 200   | 3,825                         | 2,375                            | 2,125                        | 3,975                                        | 3,050                                  | 3,400                          | 8,700           | 4,675                        | 2,800                        | 13,625                     |                          |            |             |            |                 |            |             |            |
| 100   | 3,350                         | 2,200                            | 1,875                        | 3,500                                        | 2,825                                  | 3,275                          | 7,925           | 4,300                        | 2,575                        | 13,500                     |                          |            |             |            |                 |            |             |            |
| 0     | 2,775                         | 1,850                            | 1,500                        | 3,150                                        | 2,525                                  | 3,200                          | 7,125           | 3,925                        | 2,375                        | 13,350                     |                          |            |             |            |                 |            |             |            |

Figure 10.6d continued.

TAC  
BMR 1

CASUALTY and DAMAGE Tables  
Tactical Bomber

All figures in meters

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                              | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18     | 19     | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelter |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |        |        |                   |       |       |
|       |                   |         |                     |         |                    |         |                                |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |        |        | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                         | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod    | Emer   | Neg               | Mod   | Emer  |
| 2,200 | 7,200             | 7,200   | 2,225               | 2,225   |                    | 1,150   |                                |         | 6,700                             | 6,700   | 10,450                   | 10,450  | 37,000            | 31,400 | 27,300 | 24,600          | 16,600 | 13,400 | 10,525            | 7,275 | 4,600 |
| 2,100 | 7,200             | 7,200   | 2,250               | 2,250   | 0                  | 1,300   | 0                              | 0       | 6,600                             | 6,600   | 10,300                   | 10,300  | 37,000            | 31,400 | 27,300 | 24,600          | 16,600 | 13,400 | 10,325            | 7,200 | 4,500 |
| 2,000 | 7,225             | 7,225   | 2,275               | 2,275   | 500                | 1,450   | 200                            | 200     | 6,550                             | 6,550   | 10,150                   | 10,150  | 37,000            | 31,400 | 27,300 | 24,600          | 16,600 | 13,400 | 10,150            | 7,100 | 4,375 |
| 1,900 | 7,225             | 7,225   | 2,300               | 2,300   | 800                | 1,575   | 425                            | 425     | 6,450                             | 6,450   | 10,000                   | 10,000  | 37,000            | 31,400 | 27,300 | 24,600          | 16,600 | 13,500 | 9,975             | 7,025 | 4,250 |
| 1,800 | 7,225             | 7,225   | 2,300               | 2,300   | 1,000              | 1,700   | 600                            | 600     | 6,400                             | 6,400   | 9,850                    | 9,850   | 37,000            | 31,400 | 27,300 | 24,700          | 16,600 | 13,500 | 9,775             | 6,950 | 4,125 |
| 1,700 | 7,225             | 7,225   | 2,275               | 2,275   | 1,175              | 1,800   | 700                            | 700     | 6,300                             | 6,300   | 9,700                    | 9,700   | 37,000            | 31,500 | 27,400 | 24,700          | 16,600 | 13,500 | 9,625             | 6,875 | 4,000 |
| 1,600 | 7,225             | 7,225   | 2,250               | 2,250   | 1,300              | 1,875   | 800                            | 800     | 6,200                             | 6,200   | 9,550                    | 9,550   | 37,000            | 31,500 | 27,400 | 24,700          | 16,600 | 13,500 | 9,500             | 6,800 | 3,900 |
| 1,500 | 7,225             | 7,225   | 2,225               | 2,225   | 1,475              | 1,975   | 900                            | 975     | 6,150                             | 6,150   | 9,400                    | 9,400   | 37,000            | 31,500 | 27,400 | 24,700          | 16,600 | 13,500 | 9,375             | 6,725 | 3,825 |
| 1,400 | 7,225             | 7,225   | 2,225               | 2,225   | 1,700              | 2,050   | 975                            | 1,125   | 6,050                             | 6,050   | 9,250                    | 9,250   | 37,000            | 31,500 | 27,400 | 24,700          | 16,600 | 13,500 | 9,250             | 6,675 | 3,750 |
| 1,300 | 7,225             | 7,225   | 2,200               | 2,200   | 1,950              | 2,100   | 1,050                          | 1,225   | 5,950                             | 5,950   | 9,100                    | 9,100   | 37,000            | 31,500 | 27,400 | 24,700          | 16,700 | 13,500 | 9,125             | 6,600 | 3,675 |
| 1,200 | 7,225             | 7,225   | 2,175               | 2,175   | 2,200              | 2,200   | 1,100                          | 1,325   | 5,900                             | 5,900   | 8,950                    | 8,950   | 37,000            | 31,500 | 27,400 | 24,700          | 16,700 | 13,500 | 9,000             | 6,550 | 3,625 |
| 1,100 | 7,225             | 7,225   | 2,150               | 2,150   | 2,550              | 2,550   | 1,150                          | 1,425   | 5,800                             | 5,800   | 8,800                    | 8,800   | 36,300            | 30,900 | 27,000 | 24,200          | 16,300 | 13,300 | 8,900             | 6,475 | 3,600 |
| 1,050 | 7,225             | 7,225   | 2,125               | 2,125   | 2,700              | 2,700   | 1,175                          | 1,450   | 5,800                             | 5,800   | 8,700                    | 8,700   | 35,500            | 30,200 | 26,500 | 23,700          | 16,000 | 13,000 | 8,850             | 6,450 | 3,600 |
| 1,000 | 7,225             | 7,225   | 2,125               | 2,125   | 2,850              | 2,850   | 1,175                          | 1,500   | 5,750                             | 5,750   | 8,650                    | 8,650   | 34,800            | 29,600 | 26,000 | 23,200          | 15,700 | 12,700 | 8,775             | 6,425 | 3,575 |
| 950   | 7,200             | 7,200   | 2,125               | 2,125   | 2,950              | 2,950   | 1,200                          | 1,525   | 5,700                             | 5,700   | 8,550                    | 8,550   | 34,000            | 29,000 | 25,400 | 22,700          | 15,400 | 12,500 | 8,725             | 6,400 | 3,575 |
| 900   | 7,175             | 7,175   | 2,150               | 2,150   | 3,025              | 3,025   | 1,225                          | 1,550   | 5,650                             | 5,650   | 8,450                    | 8,450   | 33,300            | 28,300 | 24,900 | 22,200          | 15,000 | 12,200 | 8,675             | 6,375 | 3,575 |
| 850   | 7,175             | 7,175   | 2,150               | 2,150   | 3,075              | 3,075   | 1,225                          | 1,575   | 5,600                             | 5,600   | 8,400                    | 8,400   | 32,600            | 27,700 | 24,300 | 21,700          | 14,600 | 11,900 | 8,625             | 6,350 | 3,575 |
| 800   | 7,150             | 7,150   | 2,150               | 2,150   | 3,125              | 3,125   | 1,250                          | 1,600   | 5,600                             | 5,600   | 8,350                    | 8,350   | 31,800            | 27,000 | 23,800 | 21,200          | 14,300 | 11,600 | 8,575             | 6,325 | 3,575 |
| 750   | 7,100             | 7,100   | 2,175               | 2,175   | 3,150              | 3,150   | 1,275                          | 1,625   | 5,550                             | 5,550   | 8,250                    | 8,250   | 31,100            | 26,400 | 23,300 | 20,700          | 14,000 | 11,300 | 8,525             | 6,275 | 3,600 |
| 700   | 7,075             | 7,075   | 2,175               | 2,175   | 3,175              | 3,175   | 1,275                          | 1,650   | 5,500                             | 5,500   | 8,200                    | 8,200   | 30,400            | 25,700 | 22,800 | 20,200          | 13,700 | 11,100 | 8,475             | 6,250 | 3,600 |
| 650   | 7,025             | 7,025   | 2,200               | 2,200   | 3,200              | 3,200   | 1,300                          | 1,675   | 5,450                             | 5,450   | 8,150                    | 8,150   | 29,600            | 25,100 | 22,300 | 19,800          | 13,400 | 10,700 | 8,425             | 6,250 | 3,625 |
| 600   | 6,975             | 6,975   | 2,225               | 2,225   | 3,200              | 3,200   | 1,325                          | 1,700   | 5,450                             | 5,450   | 8,050                    | 8,050   | 28,900            | 24,400 | 21,700 | 19,300          | 13,000 | 10,500 | 8,375             | 6,225 | 3,625 |
| 500   | 6,875             | 6,875   | 2,275               | 2,275   | 3,225              | 3,225   | 1,375                          | 1,725   | 5,350                             | 5,350   | 7,950                    | 7,950   | 27,400            | 23,200 | 20,700 | 18,300          | 12,400 | 10,000 | 8,275             | 6,175 | 3,650 |
| 400   | 6,725             | 6,725   | 2,325               | 2,325   | 3,250              | 3,250   | 1,400                          | 1,750   | 5,300                             | 5,300   | 7,850                    | 7,850   | 25,900            | 21,900 | 19,600 | 17,300          | 11,700 | 9,400  | 8,200             | 6,125 | 3,675 |
| 300   | 6,525             | 6,525   | 2,400               | 2,400   | 3,175              | 3,175   | 1,425                          | 1,775   | 5,200                             | 5,200   | 7,750                    | 7,750   | 24,500            | 20,600 | 18,500 | 16,400          | 11,100 | 8,900  | 8,100             | 6,075 | 3,700 |
| 200   | 6,275             | 6,275   | 2,475               | 2,475   | 3,050              | 3,050   | 1,450                          | 1,775   | 5,150                             | 5,150   | 7,650                    | 7,650   | 22,200            | 19,300 | 17,400 | 15,400          | 10,400 | 8,400  | 8,025             | 6,025 | 3,750 |
| 100   | 5,975             | 5,975   | 2,550               | 2,550   | 2,825              | 2,825   | 1,450                          | 1,800   | 5,100                             | 5,100   | 7,550                    | 7,550   | 21,500            | 18,000 | 16,400 | 14,500          | 9,700  | 7,800  | 7,950             | 6,000 | 3,775 |
| 0     | 5,650             | 5,650   | 2,650               | 2,650   | 2,450              | 2,475   | 1,450                          | 1,800   | 5,050                             | 5,050   | 7,500                    | 7,500   | 20,100            | 16,700 | 15,300 | 13,500          | 9,200  | 7,300  | 7,875             | 5,975 | 3,800 |

$$\begin{aligned}
 HOB_{fs} &= 706m \\
 Low\ HOB_{min} &= 668m \\
 High\ HOB_{min} &= 1,512m \\
 HOB_{99} &= HOB_{fs} + 3.5\ PE_h\ m \\
 HOB_{98} &= HOB_{fs} + 3.0\ PE_h\ m \\
 HOB_{90} &= HOB_{fs} + 1.9\ PE_h\ m
 \end{aligned}$$

Figure 10.6e.

# CASUALTY and DAMAGE Tables Tactical Bomber

LIMA/2,000 KT

All figures in meters

| 23    | 24                            | 25                               | 26                           | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HQB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>arty | Severe<br>dam<br>sup<br>deps | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                              |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
| 2,200 | 2,875                         | 0                                | 600                          | 3,850                                        | 3,500                                  | 5,075                          | 18,475          | 9,350                        | 5,125                        | 19,500                     |                          |            | 0           |            |                 |            | 0           |            |
| 2,100 | 3,825                         | 125                              | 925                          | 3,975                                        | 3,525                                  | 5,050                          | 18,475          | 9,375                        | 5,175                        | 19,400                     |                          |            | 0-5         |            |                 |            | 0-450       |            |
| 2,000 | 4,075                         | 350                              | 1,200                        | 4,100                                        | 3,550                                  | 5,000                          | 18,500          | 9,400                        | 5,200                        | 19,325                     |                          |            | 0-5         |            |                 |            | 0-800       |            |
| 1,900 | 4,300                         | 575                              | 1,450                        | 4,200                                        | 3,575                                  | 4,975                          | 18,500          | 9,400                        | 5,250                        | 19,200                     |                          |            | 0-10        |            |                 |            | 0-1,000     |            |
| 1,800 | 4,425                         | 800                              | 1,675                        | 4,325                                        | 3,600                                  | 4,925                          | 18,525          | 9,425                        | 5,275                        | 19,100                     |                          | 0          | 0-20        |            |                 | 0          | 0-1,200     |            |
| 1,700 | 4,575                         | 1,025                            | 1,875                        | 4,425                                        | 3,625                                  | 4,900                          | 18,525          | 9,450                        | 5,325                        | 19,000                     |                          | 0-5        | 0-30        |            |                 | 0-400      | 0-1,350     |            |
| 1,600 | 4,700                         | 1,250                            | 2,025                        | 4,525                                        | 3,625                                  | 4,875                          | 18,525          | 9,475                        | 5,350                        | 18,900                     |                          | 0-5        | 5-55        |            |                 | 0-700      | 100-1,150   |            |
| 1,500 | 4,825                         | 1,475                            | 2,150                        | 4,650                                        | 3,650                                  | 4,850                          | 18,550          | 9,475                        | 5,375                        | 18,775                     |                          | 0-10       | 5-100       |            |                 | 0-900      | 700-1,550   |            |
| 1,400 | 4,950                         | 1,700                            | 2,275                        | 4,750                                        | 3,675                                  | 4,800                          | 18,550          | 9,500                        | 5,400                        | 18,675                     | 0                        | 0-20       | 10-190      |            | 0               | 0-1,050    | 900-1,650   |            |
| 1,300 | 5,050                         | 1,950                            | 2,400                        | 4,825                                        | 3,700                                  | 4,775                          | 18,550          | 9,500                        | 5,425                        | 18,550                     | 0-5                      | 0-30       | 15-340      |            | 0-50            | 0-1,200    | 1,050-1,750 |            |
| 1,200 | 5,150                         | 2,200                            | 2,500                        | 4,925                                        | 3,725                                  | 4,750                          | 18,550          | 9,525                        | 5,450                        | 18,425                     | 0-5                      | 5-50       | 25-600      |            | 0-750           | 50-1,300   | 1,150-1,800 |            |
| 1,100 | 5,250                         | 2,550                            | 2,600                        | 5,025                                        | 3,750                                  | 4,700                          | 18,025          | 9,325                        | 5,425                        | 18,300                     | 0-10                     | 5-100      | 50-1,160    |            | 0-900           | 500-1,400  | 1,250-1,850 |            |
| 1,050 | 5,300                         | 2,700                            | 2,650                        | 5,075                                        | 3,750                                  | 4,675                          | 17,625          | 9,125                        | 5,325                        | 18,250                     | 0-15                     | 10-130     | 65-1,560    |            | 0-950           | 600-1,400  | 1,300-1,900 |            |
| 1,000 | 5,350                         | 2,850                            | 2,700                        | 5,125                                        | 3,775                                  | 4,650                          | 17,225          | 8,925                        | 5,225                        | 18,175                     | 0-25                     | 10-190     | 95-2,280    |            | 0-1,000         | 700-1,450  | 1,350-1,950 |            |
| 950   | 5,400                         | 2,950                            | 2,750                        | 5,150                                        | 3,775                                  | 4,650                          | 16,825          | 8,750                        | 5,125                        | 18,125                     | 0-30                     | 15-260     | 125-3,120   |            | 0-1,050         | 750-1,500  | 1,400-1,950 |            |
| 900   | 5,425                         | 3,025                            | 2,800                        | 5,200                                        | 3,800                                  | 4,625                          | 16,400          | 8,550                        | 5,000                        | 18,050                     | 5-40                     | 15-360     | 175-4,320   |            | 50-1,100        | 800-1,550  | 1,400-2,000 |            |
| 850   | 5,450                         | 3,075                            | 2,825                        | 5,225                                        | 3,800                                  | 4,600                          | 16,000          | 8,350                        | 4,900                        | 18,000                     | 5-60                     | 25-520     | 250-6,240   | 0          | 350-1,150       | 850-1,550  | 1,450-2,000 | 0          |
| 800   | 5,475                         | 3,125                            | 2,875                        | 5,275                                        | 3,825                                  | 4,575                          | 15,600          | 8,150                        | 4,800                        | 17,925                     | 5-85                     | 30-740     | 360-8,880   | 0-5        | 450-1,600       | 900-1,600  | 1,450-2,000 | 0-50       |
| 750   | 5,475                         | 3,150                            | 2,900                        | 5,300                                        | 3,825                                  | 4,575                          | 15,200          | 7,950                        | 4,700                        | 17,875                     | 5-125                    | 45-1,100   | 530-13,200  | 0-5        | 550-1,200       | 950-1,600  | 1,500-2,050 | 0-300      |
| 700   | 5,475                         | 3,175                            | 2,950                        | 5,325                                        | 3,850                                  | 4,550                          | 14,800          | 7,750                        | 4,575                        | 17,800                     | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |
| 650   | 5,450                         | 3,200                            | 2,975                        | 5,350                                        | 3,850                                  | 4,525                          | 14,400          | 7,575                        | 4,475                        | 17,725                     |                          |            |             |            |                 |            |             |            |
| 600   | 5,450                         | 3,200                            | 3,000                        | 5,350                                        | 3,850                                  | 4,475                          | 14,000          | 7,375                        | 4,375                        | 17,675                     |                          |            |             |            |                 |            |             |            |
| 500   | 5,375                         | 3,225                            | 3,050                        | 5,325                                        | 3,850                                  | 4,450                          | 13,175          | 6,975                        | 4,175                        | 17,525                     |                          |            |             |            |                 |            |             |            |
| 400   | 5,300                         | 3,250                            | 3,025                        | 5,225                                        | 3,825                                  | 4,400                          | 12,375          | 6,600                        | 3,950                        | 17,400                     |                          |            |             |            |                 |            |             |            |
| 300   | 5,175                         | 3,175                            | 2,900                        | 5,075                                        | 3,750                                  | 4,300                          | 11,575          | 6,200                        | 3,750                        | 17,250                     |                          |            |             |            |                 |            |             |            |
| 200   | 4,825                         | 3,050                            | 2,700                        | 4,850                                        | 3,625                                  | 4,175                          | 10,750          | 5,800                        | 3,525                        | 17,100                     |                          |            |             |            |                 |            |             |            |
| 100   | 4,275                         | 2,825                            | 2,400                        | 4,525                                        | 3,425                                  | 4,075                          | 9,950           | 5,425                        | 3,125                        | 16,950                     |                          |            |             |            |                 |            |             |            |
| 0     | 3,675                         | 2,450                            | 2,000                        | 4,150                                        | 3,200                                  | 3,925                          | 9,150           | 5,025                        | 3,100                        | 16,800                     |                          |            |             |            |                 |            |             |            |

Figure 10.6e continued.

TAC  
BMR 1

| 1     | 2                 | 3       | 4                   | 5       | 6                  | 7       | 8                               | 9       | 10                                | 11      | 12                       | 13      | 14                | 15     | 16     | 17              | 18     | 19     | 20                | 21    | 22    |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB   | Exposed personnel |         | Protected personnel |         | Personnel in APC's |         | Personnel in 1-m earth shelters |         | Personnel in multistory apt bldgs |         | Personnel in framehouses |         | Radius of safety  |        |        |                 |        |        |                   |       |       |
|       |                   |         |                     |         |                    |         |                                 |         |                                   |         |                          |         | Unwarned, exposed |        |        | Warned, exposed |        |        | Warned, protected |       |       |
|       | Prompt            | Delayed | Prompt              | Delayed | Prompt             | Delayed | Prompt                          | Delayed | Prompt                            | Delayed | Prompt                   | Delayed | Neg               | Mod    | Emer   | Neg             | Mod    | Emer   | Neg               | Mod   | Emer  |
| 2,500 | 10,425            | 10,425  | 3,125               | 3,125   | 1,025              | 1,475   | 725                             | 725     | 8,700                             | 8,700   | 13,600                   | 13,600  | 54,500            | 45,600 | 38,400 | 35,500          | 25,000 | 19,900 | 13,350            | 9,475 | 5,675 |
| 2,400 | 10,425            | 10,425  | 3,100               | 3,100   | 1,250              | 1,625   | 850                             | 850     | 8,600                             | 8,600   | 13,450                   | 13,450  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 19,900 | 13,200            | 9,400 | 5,550 |
| 2,300 | 10,425            | 10,425  | 3,075               | 3,075   | 1,500              | 1,750   | 950                             | 950     | 8,500                             | 8,500   | 13,300                   | 13,300  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 13,075            | 9,325 | 5,425 |
| 2,200 | 10,425            | 10,425  | 3,075               | 3,075   | 1,750              | 1,875   | 1,050                           | 1,050   | 8,400                             | 8,400   | 13,200                   | 13,200  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 12,925            | 9,250 | 5,325 |
| 2,100 | 10,425            | 10,425  | 3,050               | 3,050   | 1,975              | 2,000   | 1,150                           | 1,150   | 8,350                             | 8,350   | 13,050                   | 13,050  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 12,800            | 9,175 | 5,225 |
| 2,000 | 10,425            | 10,425  | 3,025               | 3,025   | 2,225              | 2,225   | 1,250                           | 1,250   | 8,250                             | 8,250   | 12,900                   | 12,900  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 12,675            | 9,125 | 5,150 |
| 1,900 | 10,425            | 10,425  | 3,000               | 3,000   | 2,475              | 2,475   | 1,325                           | 1,325   | 8,200                             | 8,200   | 12,750                   | 12,750  | 54,500            | 45,700 | 38,400 | 35,500          | 25,000 | 20,000 | 12,550            | 9,050 | 5,075 |
| 1,800 | 10,425            | 10,425  | 2,975               | 2,975   | 2,725              | 2,725   | 1,400                           | 1,400   | 8,100                             | 8,100   | 12,650                   | 12,650  | 54,500            | 45,700 | 38,400 | 35,600          | 25,000 | 20,000 | 12,425            | 8,975 | 5,025 |
| 1,700 | 10,425            | 10,425  | 2,950               | 2,950   | 2,950              | 2,950   | 1,450                           | 1,450   | 8,050                             | 8,050   | 12,500                   | 12,500  | 54,500            | 45,700 | 38,400 | 35,600          | 25,000 | 20,000 | 12,300            | 8,925 | 4,950 |
| 1,600 | 10,425            | 10,425  | 2,925               | 2,925   | 3,275              | 3,275   | 1,500                           | 1,500   | 8,000                             | 8,000   | 12,400                   | 12,400  | 53,700            | 45,300 | 37,900 | 35,100          | 24,600 | 19,800 | 12,175            | 8,850 | 4,925 |
| 1,500 | 10,425            | 10,425  | 2,925               | 2,925   | 3,650              | 3,650   | 1,550                           | 1,550   | 7,900                             | 7,900   | 12,300                   | 12,300  | 52,200            | 44,000 | 36,900 | 34,000          | 23,900 | 19,200 | 12,075            | 8,800 | 4,875 |
| 1,400 | 10,425            | 10,425  | 2,875               | 2,875   | 4,000              | 4,000   | 1,600                           | 1,600   | 7,850                             | 7,850   | 12,200                   | 12,200  | 50,600            | 42,700 | 35,900 | 33,000          | 23,200 | 18,600 | 11,950            | 8,750 | 4,875 |
| 1,300 | 10,400            | 10,400  | 2,900               | 2,900   | 4,250              | 4,250   | 1,625                           | 1,675   | 7,800                             | 7,800   | 12,050                   | 12,050  | 49,000            | 41,400 | 34,800 | 32,100          | 22,500 | 18,000 | 11,850            | 8,675 | 4,850 |
| 1,200 | 10,375            | 10,375  | 2,900               | 2,900   | 4,400              | 4,400   | 1,650                           | 1,750   | 7,750                             | 7,750   | 11,950                   | 11,950  | 47,500            | 40,000 | 33,800 | 31,100          | 21,800 | 17,500 | 11,750            | 8,625 | 4,850 |
| 1,100 | 10,300            | 10,300  | 2,925               | 2,925   | 4,500              | 4,500   | 1,700                           | 1,825   | 7,700                             | 7,700   | 11,850                   | 11,850  | 46,000            | 38,900 | 32,800 | 30,100          | 21,100 | 17,000 | 11,650            | 8,575 | 4,850 |
| 1,050 | 10,275            | 10,275  | 2,950               | 2,950   | 4,525              | 4,525   | 1,700                           | 1,850   | 7,650                             | 7,650   | 11,800                   | 11,800  | 45,200            | 38,200 | 32,300 | 29,600          | 20,700 | 16,700 | 11,600            | 8,550 | 4,875 |
| 1,000 | 10,250            | 10,250  | 2,950               | 2,950   | 4,550              | 4,550   | 1,725                           | 1,875   | 7,600                             | 7,600   | 11,750                   | 11,750  | 44,400            | 37,600 | 31,800 | 29,100          | 20,400 | 16,400 | 11,550            | 8,525 | 4,875 |
| 950   | 10,200            | 10,200  | 2,975               | 2,975   | 4,575              | 4,575   | 1,725                           | 1,900   | 7,600                             | 7,600   | 11,700                   | 11,700  | 53,600            | 36,800 | 31,200 | 28,600          | 20,000 | 16,100 | 11,500            | 8,500 | 4,900 |
| 900   | 10,150            | 10,150  | 2,975               | 2,975   | 4,600              | 4,600   | 1,750                           | 1,925   | 7,550                             | 7,550   | 11,650                   | 11,650  | 42,900            | 36,200 | 30,700 | 28,100          | 19,700 | 15,800 | 11,450            | 8,475 | 4,900 |
| 850   | 10,100            | 10,100  | 3,000               | 3,000   | 4,625              | 4,625   | 1,750                           | 1,950   | 7,500                             | 7,500   | 11,600                   | 11,600  | 42,100            | 35,600 | 30,200 | 27,600          | 19,300 | 15,500 | 11,400            | 8,450 | 4,925 |
| 800   | 10,050            | 10,050  | 3,025               | 3,025   | 4,625              | 4,625   | 1,775                           | 1,975   | 7,500                             | 7,500   | 11,550                   | 11,550  | 41,400            | 35,000 | 29,700 | 27,100          | 19,000 | 15,200 | 11,350            | 8,425 | 4,925 |
| 750   | 10,000            | 10,000  | 3,050               | 3,050   | 4,650              | 4,650   | 1,775                           | 2,000   | 7,450                             | 7,450   | 11,500                   | 11,500  | 40,600            | 34,400 | 29,200 | 26,600          | 18,600 | 14,700 | 11,300            | 8,400 | 4,950 |
| 700   | 9,950             | 9,950   | 3,075               | 3,075   | 4,650              | 4,650   | 1,800                           | 2,000   | 7,450                             | 7,450   | 11,450                   | 11,450  | 39,800            | 33,700 | 28,700 | 26,100          | 18,300 | 14,400 | 11,250            | 8,375 | 4,950 |
| 600   | 9,800             | 9,800   | 3,125               | 3,125   | 4,675              | 4,675   | 1,825                           | 2,050   | 7,350                             | 7,350   | 11,350                   | 11,350  | 38,200            | 32,400 | 27,700 | 25,100          | 17,600 | 14,100 | 11,175            | 8,325 | 4,975 |
| 500   | 9,625             | 9,625   | 3,200               | 3,200   | 4,675              | 4,675   | 1,825                           | 2,075   | 7,300                             | 7,300   | 11,250                   | 11,250  | 36,700            | 31,100 | 26,600 | 24,100          | 16,900 | 13,500 | 11,075            | 8,300 | 5,000 |
| 400   | 9,400             | 9,400   | 3,250               | 3,250   | 4,575              | 4,575   | 1,850                           | 2,100   | 7,250                             | 7,250   | 11,150                   | 11,150  | 35,200            | 29,800 | 25,600 | 23,100          | 16,200 | 13,000 | 11,000            | 8,250 | 5,050 |
| 300   | 9,125             | 9,125   | 3,325               | 3,325   | 4,450              | 4,450   | 1,875                           | 2,100   | 7,200                             | 7,200   | 11,050                   | 11,050  | 33,600            | 28,500 | 24,600 | 22,100          | 15,500 | 12,400 | 10,925            | 8,225 | 5,075 |
| 200   | 8,850             | 8,850   | 3,425               | 3,425   | 4,250              | 4,250   | 1,875                           | 2,100   | 7,150                             | 7,150   | 10,950                   | 10,950  | 32,100            | 27,200 | 23,600 | 21,100          | 14,800 | 11,900 | 10,850            | 8,175 | 5,100 |
| 100   | 8,500             | 8,500   | 3,500               | 3,500   | 3,925              | 3,925   | 1,900                           | 2,125   | 7,100                             | 7,100   | 10,850                   | 10,850  | 30,600            | 26,000 | 22,500 | 20,200          | 14,200 | 11,300 | 10,775            | 8,150 | 5,125 |
| 0     | 8,125             | 8,125   | 3,600               | 3,600   | 3,525              | 3,525   | 1,900                           | 2,125   | 7,050                             | 7,050   | 10,750                   | 10,750  | 29,200            | 24,700 | 21,500 | 19,200          | 13,600 | 10,800 | 10,700            | 8,100 | 5,150 |

HOB<sub>fs</sub> = 958m

Low HOB<sub>min</sub> = 905m

High HOB<sub>min</sub> = 2,052m

HOB<sub>99</sub> = HOB<sub>fs</sub> + 3.5 PE<sub>h</sub> m

HOB<sub>98</sub> = HOB<sub>fs</sub> + 3.0 PE<sub>h</sub> m

HOB<sub>90</sub> = HOB<sub>fs</sub> + 1.9 PE<sub>h</sub> m

Figure 10.6f.



**CASUALTY and DAMAGE Tables**  
**Tactical Bomber**  
*All figures in meters*

**MIKE/5,000 KT**

| 23    | 24                            | 25                               | 26                            | 27                                           | 28                                     | 29                             | 30              | 31                           | 32                           | 33                         | 34                       | 35         | 36          | 37         | 38              | 39         | 40          | 41         |
|-------|-------------------------------|----------------------------------|-------------------------------|----------------------------------------------|----------------------------------------|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB   | Mod<br>dam<br>wheeled<br>vehs | Mod<br>dam<br>tks<br>and<br>Arty | Severe<br>dam<br>sup<br>depts | Severe<br>dam<br>radios<br>and elec<br>equip | Severe<br>dam<br>hwy and<br>RR<br>brgs | Severe<br>dam<br>float<br>brgs | 2d-degree burns |                              |                              | 1 PSI<br>over-<br>pressure | Induced contamination    |            |             |            |                 |            |             |            |
|       |                               |                                  |                               |                                              |                                        |                                | Exposed<br>skin | 2-layer<br>summer<br>uniform | 4-layer<br>winter<br>uniform |                            | Intensity at GZ (Rad/hr) |            |             |            | 2 rad/hr radius |            |             |            |
|       |                               |                                  |                               |                                              |                                        |                                |                 |                              |                              |                            | Type<br>I                | Type<br>II | Type<br>III | Type<br>IV | Type<br>I       | Type<br>II | Type<br>III | Type<br>IV |
|       |                               |                                  |                               |                                              |                                        |                                |                 |                              |                              |                            |                          |            |             |            |                 |            |             |            |
| 2,500 | 6,325                         | 1,025                            | 2,300                         | 6,150                                        | 5,075                                  | 7,375                          | 26,375          | 13,275                       | 7,850                        | 26,000                     |                          |            |             |            |                 |            |             |            |
| 2,400 | 6,450                         | 1,250                            | 2,500                         | 6,275                                        | 5,075                                  | 7,350                          | 26,400          | 13,275                       | 7,875                        | 25,875                     |                          |            | 0           |            |                 |            | 0           |            |
| 2,300 | 6,600                         | 1,500                            | 2,700                         | 6,400                                        | 5,100                                  | 7,300                          | 26,400          | 13,300                       | 7,900                        | 25,775                     |                          |            | 0-5         |            |                 |            | 0-50        |            |
| 2,200 | 6,750                         | 1,750                            | 2,875                         | 6,500                                        | 5,125                                  | 7,250                          | 26,400          | 13,325                       | 7,925                        | 25,675                     |                          |            | 0-5         |            |                 |            | 0-700       |            |
| 2,100 | 6,875                         | 1,975                            | 3,025                         | 6,625                                        | 5,150                                  | 7,200                          | 26,425          | 13,325                       | 7,950                        | 25,550                     |                          |            | 0-10        |            |                 |            | 0-950       |            |
| 2,000 | 7,000                         | 2,225                            | 3,150                         | 6,725                                        | 5,175                                  | 7,150                          | 26,425          | 13,350                       | 7,975                        | 25,450                     |                          | 0          | 0-15        |            |                 | 0          | 0-1,150     |            |
| 1,900 | 7,125                         | 2,475                            | 3,275                         | 6,825                                        | 5,175                                  | 7,100                          | 26,425          | 13,375                       | 8,000                        | 25,325                     |                          | 0-5        | 0-25        |            |                 | 0-50       | 0-1,300     |            |
| 1,800 | 7,250                         | 2,725                            | 3,400                         | 6,950                                        | 5,200                                  | 7,050                          | 26,450          | 13,375                       | 8,025                        | 25,225                     |                          | 0-5        | 0-40        |            |                 | 0-600      | 0-1,450     |            |
| 1,700 | 7,375                         | 2,950                            | 3,525                         | 7,050                                        | 5,200                                  | 7,000                          | 26,450          | 13,400                       | 8,050                        | 25,100                     |                          | 0-10       | 5-75        |            |                 | 0-850      | 400-1,550   |            |
| 1,600 | 7,475                         | 3,275                            | 3,650                         | 7,150                                        | 5,225                                  | 6,950                          | 25,775          | 13,150                       | 8,025                        | 24,975                     | 0                        | 0-15       | 10-130      |            | 0               | 0-1,050    | 700-1,700   |            |
| 1,500 | 7,575                         | 3,650                            | 3,750                         | 7,250                                        | 5,250                                  | 6,900                          | 24,950          | 12,775                       | 7,800                        | 24,850                     | 0-5                      | 0-25       | 10-250      |            | 0-400           | 0-1,200    | 900-1,750   |            |
| 1,400 | 7,675                         | 4,000                            | 3,850                         | 7,350                                        | 5,250                                  | 6,850                          | 24,150          | 12,375                       | 7,575                        | 24,725                     | 0-5                      | 0-40       | 20-460      |            | 0-700           | 0-1,300    | 1,050-1,850 |            |
| 1,300 | 7,775                         | 4,250                            | 3,950                         | 7,425                                        | 5,275                                  | 6,800                          | 23,350          | 12,000                       | 7,350                        | 24,600                     | 0-10                     | 5-70       | 35-840      |            | 0-850           | 400-1,400  | 1,200-1,900 |            |
| 1,200 | 7,850                         | 4,400                            | 4,050                         | 7,525                                        | 5,275                                  | 6,750                          | 22,525          | 11,600                       | 7,125                        | 24,475                     | 0-15                     | 5-125      | 60-1,500    |            | 0-1,000         | 650-1,500  | 1,300-2,000 |            |
| 1,100 | 7,875                         | 4,500                            | 4,125                         | 7,575                                        | 5,300                                  | 6,700                          | 21,725          | 11,225                       | 6,900                        | 24,350                     | 0-30                     | 10-240     | 120-2,880   |            | 0-1,100         | 800-1,600  | 1,400-2,050 |            |
| 1,050 | 7,900                         | 4,525                            | 4,175                         | 7,625                                        | 5,300                                  | 6,675                          | 21,300          | 11,025                       | 6,800                        | 24,300                     | 0-40                     | 15-325     | 160-3,900   |            | 0-1,150         | 850-1,600  | 1,400-2,050 |            |
| 1,000 | 7,900                         | 4,550                            | 4,200                         | 7,650                                        | 5,325                                  | 6,650                          | 20,900          | 10,825                       | 6,675                        | 24,225                     | 5-55                     | 20-475     | 230-5,700   | 0          | 50-1,200        | 950-1,650  | 1,450-2,100 | 0          |
| 950   | 7,900                         | 4,575                            | 4,250                         | 7,675                                        | 5,325                                  | 6,625                          | 20,500          | 10,625                       | 6,575                        | 24,150                     | FALLOUT GOVERNS          |            |             |            |                 |            |             |            |
| 900   | 7,875                         | 4,600                            | 4,275                         | 7,700                                        | 5,350                                  | 6,575                          | 20,100          | 10,450                       | 6,450                        | 24,100                     |                          |            |             |            |                 |            |             |            |
| 850   | 7,875                         | 4,625                            | 4,325                         | 7,725                                        | 5,350                                  | 6,550                          | 19,700          | 10,250                       | 6,350                        | 24,025                     |                          |            |             |            |                 |            |             |            |
| 800   | 7,850                         | 4,625                            | 4,350                         | 7,725                                        | 5,350                                  | 6,525                          | 19,275          | 10,050                       | 6,225                        | 23,950                     |                          |            |             |            |                 |            |             |            |
| 750   | 7,800                         | 4,650                            | 4,375                         | 7,700                                        | 5,350                                  | 6,500                          | 18,875          | 9,850                        | 6,125                        | 23,900                     |                          |            |             |            |                 |            |             |            |
| 700   | 7,775                         | 4,650                            | 4,400                         | 7,700                                        | 5,375                                  | 6,500                          | 18,475          | 9,675                        | 6,000                        | 23,825                     |                          |            |             |            |                 |            |             |            |
| 600   | 7,700                         | 4,675                            | 4,400                         | 7,625                                        | 5,375                                  | 6,450                          | 17,675          | 9,275                        | 5,775                        | 23,675                     |                          |            |             |            |                 |            |             |            |
| 500   | 7,600                         | 4,675                            | 4,325                         | 7,500                                        | 5,350                                  | 6,400                          | 16,850          | 8,900                        | 5,500                        | 23,550                     |                          |            |             |            |                 |            |             |            |
| 400   | 7,425                         | 4,575                            | 4,175                         | 7,300                                        | 5,250                                  | 6,325                          | 16,050          | 8,500                        | 5,325                        | 23,400                     |                          |            |             |            |                 |            |             |            |
| 300   | 7,100                         | 4,450                            | 3,950                         | 7,050                                        | 5,125                                  | 6,250                          | 15,225          | 8,125                        | 5,100                        | 23,250                     |                          |            |             |            |                 |            |             |            |
| 200   | 6,575                         | 4,250                            | 3,675                         | 6,775                                        | 4,975                                  | 6,150                          | 14,425          | 7,725                        | 4,875                        | 23,100                     |                          |            |             |            |                 |            |             |            |
| 100   | 5,925                         | 3,925                            | 3,300                         | 6,400                                        | 4,700                                  | 6,075                          | 13,600          | 7,350                        | 4,650                        | 22,975                     |                          |            |             |            |                 |            |             |            |
| 0     | 5,300                         | 3,525                            | 2,875                         | 6,000                                        | 3,975                                  | 5,975                          | 12,800          | 6,950                        | 4,425                        | 22,825                     |                          |            |             |            |                 |            |             |            |

Figure 10.6f continued.

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# **CONTINGENT EFFECTS Tables** **Tactical Bomber**

**INDUCED RADIATION IN SOILS (See note 1.)**  
Fallout activity is not significant.  
Impact burst not tabulated, fallout governs.

| Yield<br><br>KT | HOB  | Estimated radii in meters of 2 rad/hr contour of induced radiation,<br>1 hour after burst. |                                 |                                      |                                                 | Estimated induced radiation intensity, 1 hour<br>after burst, at GZ. In rad/hr |              |               |              |
|-----------------|------|--------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------|--------------|---------------|--------------|
|                 |      | Soil type I<br>(Liberia, Africa)                                                           | Soil type II<br>(Nevada desert) | Soil type III<br>(lava clay, Hawaii) | Soil type IV<br>(beach sand,<br>Pensacola, Fla) | Soil type I                                                                    | Soil type II | Soil type III | Soil type IV |
| HOTEL/100       | Low  | 500-850                                                                                    | 750-1,250                       | 1,150-1,650                          | 0-400                                           | 20-430                                                                         | 160-3,900    | 1,880-46,800  | 0-15         |
|                 | High | 0-700                                                                                      | 500-1,100                       | 1,000-1,550                          | 0                                               | 0-20                                                                           | 10-160       | 90-1,920      | 0            |
| INDIA/200       | Low  | 400-900                                                                                    | 750-1,300                       | 1,200-1,750                          | 0-350                                           | 10-210                                                                         | 80-1,900     | 920-22,800    | 0-5          |
|                 | High | 0-700                                                                                      | 400-1,150                       | 1,050-1,650                          | 0                                               | 0-15                                                                           | 5-110        | 55-1,320      | 0            |
| JULIETT/500     | Low  | 400-1,000                                                                                  | 800-1,400                       | 1,300-1,900                          | 0-400                                           | 5-110                                                                          | 40-1,000     | 480-12,000    | 0-5          |
|                 | High | 0-650                                                                                      | 300-1,200                       | 1,050-1,750                          | 0                                               | 0-10                                                                           | 5-65         | 35-780        | 0            |
| KILO/1,000      | Low  | 400-1,100                                                                                  | 900-1,500                       | 1,350-1,950                          | 0-300                                           | 5-95                                                                           | 35-825       | 400-9,900     | 0-5          |
|                 | High | 0-500                                                                                      | 0-1,150                         | 900-1,700                            | 0                                               | 0-5                                                                            | 0-25         | 15-300        | 0            |
| LIMA/2,000      | Low  | 350-1,150                                                                                  | 850-1,550                       | 1,450-2,000                          | 0                                               | 5-60                                                                           | 25-520       | 250-6,240     | 0            |
|                 | High | 0                                                                                          | 0-1,050                         | 900-1,650                            | 0                                               | 0                                                                              | 0-20         | 10-190        | 0            |
| MIKE/5,000      | Low  | 0-1,100                                                                                    | 800-1,600                       | 1,400-2,050                          | 0                                               | 0-30                                                                           | 10-240       | 120-2,880     | 0            |
|                 | High | 0                                                                                          | 0-50                            | 0-1,300                              | 0                                               | 0                                                                              | 0-5          | 0-25          | 0            |
|                 | Low  |                                                                                            |                                 |                                      |                                                 |                                                                                |              |               |              |
|                 | High |                                                                                            |                                 |                                      |                                                 |                                                                                |              |               |              |
|                 | Low  |                                                                                            |                                 |                                      |                                                 |                                                                                |              |               |              |
|                 | High |                                                                                            |                                 |                                      |                                                 |                                                                                |              |               |              |

NOTE: For description of chemical composition and effects of variations in chemical composition in soil types, see FM 101-31-1, app III, annex F.

Figure 10.7a.

## **TREE BLOWDOWN (See note.)** All distances in meters

| Yield<br><br>KT | OBSTACLES TO MOVEMENT                |            |             |            |                             |                     |                      | CASUALTIES TO<br>EXPOSED PERSONNEL |                     |                      |
|-----------------|--------------------------------------|------------|-------------|------------|-----------------------------|---------------------|----------------------|------------------------------------|---------------------|----------------------|
|                 | Foot and wheeled<br>vehicle movement |            |             |            | Tracked vehicle<br>movement |                     |                      |                                    |                     |                      |
|                 | Type<br>I                            | Type<br>II | Type<br>III | Type<br>IV | Type<br>I                   | Types<br>II, IVa(d) | Types<br>III, IVa(f) | Type<br>I                          | Types<br>II, IVa(d) | Types<br>III, IVa(f) |
| HOTEL/100       | 2,000                                | 2,600      | 3,100       | 5,000      | 2,000                       | 2,600               | 3,100                | 1,700                              | 2,000               | 2,250                |
| INDIA/200       | 2,450                                | 3,200      | 3,800       | 6,200      | 2,450                       | 3,200               | 3,800                | 2,000                              | 2,400               | 2,700                |
| JULIETT/500     | 3,750                                | 4,800      | 6,000       | 9,400      | 3,750                       | 4,800               | 6,000                | 3,150                              | 3,600               | 4,200                |
| KILO/1,000      | 5,000                                | 6,200      | 7,700       | 12,000     | 5,000                       | 6,200               | 7,700                | 4,050                              | 4,600               | 5,200                |
| LIMA/2,000      | 5,800                                | 7,400      | 9,600       | 14,500     | 5,800                       | 7,400               | 9,600                | 4,600                              | 5,200               | 6,500                |
| MIKE/5,000      | 8,600                                | 12,000     | 14,500      | 22,000     | 8,600                       | 12,000              | 14,500               | 7,000                              | 8,000               | 9,600                |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 10.7b.

## **LIGHT AIRCRAFT IN FLIGHT (See note 1.)**

| Yield<br><br>KT | AIRCRAFT SAFETY RADII-meters<br>(See note 2.) |                       |                           |
|-----------------|-----------------------------------------------|-----------------------|---------------------------|
|                 | Light fixed<br>wing                           | Recon and<br>obsn hel | Transport and<br>util hel |
| HOTEL/100       | 22,000                                        | 21,000                | 18,000                    |
| INDIA/200       | 27,000                                        | 26,000                | 23,000                    |
| JULIETT/500     | 35,000                                        | 34,000                | 31,000                    |
| KILO/1,000      | 43,000                                        | 42,000                | 40,000                    |
| LIMA/2,000      | 51,000                                        | 50,000                | 47,000                    |
| MIKE/5,000      | 62,000                                        | 61,000                | 58,000                    |

- NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.  
2. A buffer distance has been added to these radii of safety.

Figure 10.7c.

**CONTINGENT EFFECTS Tables (continued)**  
**Tactical Bomber**

**FIRE AREAS (See note.)**

| Yield<br>KT     | HOB    | Expected radii for ignition of wildland fuels during fire season—meters |          |           |          |                                             |          |           |          |
|-----------------|--------|-------------------------------------------------------------------------|----------|-----------|----------|---------------------------------------------|----------|-----------|----------|
|                 |        | Dry climate (25 percent relative humidity)                              |          |           |          | Damp climate (75 percent relative humidity) |          |           |          |
|                 |        | Class I                                                                 | Class II | Class III | Class IV | Class I                                     | Class II | Class III | Class IV |
| HOTEL/<br>100   | Air    | 6,400                                                                   | 5,900    | 5,400     | 4,400    | 5,900                                       | 5,900    | 4,800     | 3,700    |
|                 | Impact | 3,500                                                                   | 3,200    | 3,000     | 2,500    | 3,200                                       | 3,200    | 2,800     | 2,100    |
| INDIA/200       | Air    | 8,300                                                                   | 7,700    | 7,000     | 5,800    | 7,700                                       | 7,700    | 6,400     | 4,800    |
|                 | Impact | 4,500                                                                   | 4,200    | 3,800     | 3,200    | 4,200                                       | 4,200    | 3,500     | 2,700    |
| JULIETT/<br>500 | Air    | 11,900                                                                  | 11,000   | 9,900     | 8,200    | 11,000                                      | 11,000   | 9,200     | 6,900    |
|                 | Impact | 6,200                                                                   | 5,700    | 5,300     | 4,400    | 5,700                                       | 5,700    | 4,900     | 3,800    |
| KILO/1,000      | Air    | 15,600                                                                  | 14,200   | 12,900    | 10,700   | 14,200                                      | 14,200   | 11,900    | 8,900    |
|                 | Impact | 7,800                                                                   | 7,200    | 6,600     | 5,600    | 7,200                                       | 7,200    | 6,200     | 4,800    |
| LIMA/2,000      | Air    | 20,600                                                                  | 18,800   | 17,000    | 14,000   | 18,800                                      | 18,800   | 15,600    | 11,800   |
|                 | Impact | 10,100                                                                  | 9,400    | 8,600     | 7,100    | 9,400                                       | 9,400    | 7,900     | 6,100    |
| MIKE/5,000      | Air    | 29,300                                                                  | 26,700   | 23,300    | 20,200   | 26,700                                      | 26,700   | 22,500    | 16,800   |
|                 | Impact | 14,000                                                                  | 12,900   | 11,800    | 9,900    | 12,900                                      | 12,900   | 10,900    | 8,500    |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 10.7d.

**CRATER DIMENSIONS (See note.)**

| Yield<br>KT | Approx crater dimensions for various soil types—meters |       |                                         |       |                                                  |       |                                                   |       |
|-------------|--------------------------------------------------------|-------|-----------------------------------------|-------|--------------------------------------------------|-------|---------------------------------------------------|-------|
|             | Hard rock<br>(granite and<br>sandstone)                |       | Soft rock<br>(dry soil or<br>soft rock) |       | Saturated soil<br>(water slowly<br>fills crater) |       | Saturated soil<br>(water rapidly<br>fills crater) |       |
|             | Radius                                                 | Depth | Radius                                  | Depth | Radius                                           | Depth | Radius                                            | Depth |
| HOTEL/100   | 73                                                     | 17    | 91                                      | 21    | 136                                              | 31    | 182                                               | 15    |
| INDIA/200   | 92                                                     | 20    | 115                                     | 24    | 172                                              | 36    | 229                                               | 17    |
| JULIETT/500 | 124                                                    | 25    | 155                                     | 31    | 233                                              | 46    | 310                                               | 22    |
| KILO/1,000  | 156                                                    | 29    | 196                                     | 36    | 293                                              | 54    | 391                                               | 26    |
| LIMA/2,000  | 197                                                    | 35    | 246                                     | 43    | 369                                              | 65    | 492                                               | 30    |
| MIKE/5,000  | 267                                                    | 43    | 334                                     | 54    | 501                                              | 81    | 668                                               | 38    |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 10.7e.

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# CHAPTER 11 STRATEGIC BOMBER

## 11.1 GENERAL

a. *Orientation.* This chapter contains employment data for the nuclear bombs delivered by strategic bombers.

b. *Weapon characteristics.*

(1) *Yield.* The bombs carried by strategic bombers have yields of Kilo/1 MT, Lima/2 MT, and Mike/5 MT.

(2) *Fuzing.*

(a) The fuzing for these bombs provides airburst and impact fuzing options. The airburst option is radar-fuzed and can be set for either high or low airburst; these are the only heights of burst available. Contact backup is provided in all cases where the airburst option is selected.

(b) The fuzes are preset at the following heights of burst:

| Warhead section | HOB option | HOB (meters) | PE <sub>h</sub> (meters) |
|-----------------|------------|--------------|--------------------------|
| Kilo/1 MT       | low        | 1,260        | 200                      |
|                 | high       | 1,750        |                          |
| Lima/2 MT       | low        | 1,406        | 200                      |
|                 | high       | 2,023        |                          |
| Mike/5 MT       | low        | 1,658        | 200                      |
|                 | high       | 2,496        |                          |

(3) *Preinitiation.* See figure 13.7 for the necessary considerations where a multiple weapon attack is desired.

c. *Employment considerations.*

(1) *Range.* The radius of action for strategic bombers varies depending on the type bomber used. For training purposes only, a maximum radius of action of 2,400 kilometers is assumed. In an actual situation, the delivery unit concerned is consulted to obtain this information.

(2) *Tactical system accuracy.* Horizontal dispersion is dependent on the proficiency of the aircraft pilot and crew, and the technique of delivery. The CEP used in this chapter for delivery by strategic bomber is an average value for well-trained crews. A CEP of 2,000 meters has been used in the computation of the weapon selection tables. The vertical probable error is 200 meters.

(3) *Response time.* The times shown below can be used as a basis for general tactical planning. For detailed tactical planning, the response times should be the actual times obtained from the delivery unit concerned. The times listed below are average times only for normal operations after alert. Such factors as distance and routes to the bomb storage areas, type of transportation, type of ground handling equipment, and enemy action influence bomb preparation and loading.

| Situation       | Time (minutes) | Remarks                                                                                                                                                     |
|-----------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I <sup>1</sup>  | 360            | (a) In both situations, flight time must be added to the times shown.<br>(b) Time may vary in situation I as distance from storage area to aircraft varies. |
| II <sup>2</sup> | 30             |                                                                                                                                                             |

<sup>1</sup>Situation I (ready)—bomb is partially assembled and tested to allow shortest assembly time. The bomb is located in a storage area.

<sup>2</sup>Situation II (strike)—bomb is assembled and loaded on the aircraft. The aircraft and crew are on ground alert.

(4) *Special considerations.* The target analyst coordinates closely with the liaison officer representing the delivery unit concerned. The analyst needs to know the CEP involved, because CEP varies depending on the crew assigned and the delivery technique to be used to attack the target. (See para 11.1c(2), above, for assumption made for the weapon selection tables that follow.) When an airburst fuzing option is selected, the fire mission states the desired radar HOB setting as high or low. When an impact fuzing option is selected, the fire mission specifies HOB impact. When employing these weapons, a fallout prediction is always made.

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# **EXPOSED Personnel Targets Strategic Bomber**

| Yield | HOB option<br>(HOB-meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>Unl Ex)<br>(meters) | FRACTION OF TARGET COVERED<br><i>In the column under each target radius, the first figure is<br/>the probable minimum coverage, the second figure is the average coverage.</i> |        |        |        |        |        |        |                        |       |        |        |        |        |        | Probable<br>minimum<br>R <sub>D</sub><br>(meters) |          | Offset<br>distance<br>d <sub>o</sub><br>(meters) |                 |
|-------|----------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|------------------------|-------|--------|--------|--------|--------|--------|---------------------------------------------------|----------|--------------------------------------------------|-----------------|
|       |                            |                                                                            | PROMPT CASUALTIES                                                                                                                                                              |        |        |        |        |        |        | DELAYED CASUALTIES     |       |        |        |        |        |        |                                                   |          |                                                  |                 |
|       |                            |                                                                            | Target radius (meters)                                                                                                                                                         |        |        |        |        |        |        | Target radius (meters) |       |        |        |        |        |        |                                                   |          |                                                  |                 |
|       |                            |                                                                            | 4,000                                                                                                                                                                          | 6,000  | 8,000  | 10,000 | 12,000 | 14,000 | 16,000 | 4,000                  | 6,000 | 8,000  | 10,000 | 12,000 | 14,000 | 16,000 |                                                   |          |                                                  |                 |
| KT    | (See note)                 |                                                                            |                                                                                                                                                                                |        |        |        |        |        |        |                        |       |        |        |        |        | Prompt | Delayed                                           | (meters) |                                                  |                 |
| 1,000 | High (1,750)               | 32,400                                                                     | .6/.8                                                                                                                                                                          | .5/.6  | .4/.4  | .2/.3  | .1/.2  | .1/.2  | .1/.1  |                        | .6/.8 | .5/.6  | .4/.4  | .2/.3  | .1/.2  | .1/.2  | .1/.1                                             | 5,400    | 5,400                                            | 3,660           |
|       | Low (1,260)                | 32,400                                                                     | .6/.8                                                                                                                                                                          | .5/.7  | .4/.4  | .2/.3  | .1/.2  | .1/.2  | .1/.1  |                        | .6/.8 | .5/.7  | .4/.4  | .2/.3  | .1/.2  | .1/.2  | .1/.1                                             | 5,475    | 5,475                                            | (all<br>yields) |
|       | Impact                     | *19,100                                                                    | .5/.7                                                                                                                                                                          | .3/.5  | .2/.3  | .1/.2  | .1/.1  |        |        |                        | .5/.7 | .3/.5  | .2/.3  | .1/.2  | .1/.1  |        |                                                   | 4,350    | 4,350                                            |                 |
| 2,000 |                            |                                                                            | Target radius (meters)                                                                                                                                                         |        |        |        |        |        |        | Target radius (meters) |       |        |        |        |        |        |                                                   |          |                                                  |                 |
|       |                            |                                                                            | 6,000                                                                                                                                                                          | 8,000  | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000                 | 6,000 | 8,000  | 10,000 | 12,000 | 14,000 | 16,000 | 18,000                                            | 20,000   |                                                  |                 |
|       | High (2,023)               | 41,000                                                                     | .7/.8                                                                                                                                                                          | .5/.7  | .4/.5  | .3/.4  | .2/.3  | .1/.2  | .1/.2  | .1/.1                  | .7/.8 | .5/.7  | .4/.5  | .3/.4  | .2/.3  | .1/.2  | .1/.2                                             | .1/.1    | 7,200                                            | 7,200           |
|       | Low (1,406)                | 41,000                                                                     | .7/.8                                                                                                                                                                          | .5/.7  | .4/.5  | .3/.4  | .2/.3  | .1/.2  | .1/.2  | .1/.1                  | .7/.8 | .5/.7  | .4/.5  | .3/.4  | .2/.3  | .1/.2  | .1/.2                                             | .1/.1    | 7,225                                            | 7,225           |
|       | Impact                     | *24,100                                                                    | .5/.7                                                                                                                                                                          | .4/.5  | .3/.3  | .2/.2  | .1/.2  | .1/.1  |        |                        | .5/.7 | .4/.5  | .3/.3  | .2/.2  | .1/.2  | .1/.1  |                                                   |          | 5,725                                            | 5,725           |
| 5,000 |                            |                                                                            | Target radius (meters)                                                                                                                                                         |        |        |        |        |        |        | Target radius (meters) |       |        |        |        |        |        |                                                   |          |                                                  |                 |
|       |                            |                                                                            | 8,000                                                                                                                                                                          | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000 | 22,000                 | 8,000 | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | 20,000                                            | 22,000   |                                                  |                 |
|       | High (2,496)               | 58,800                                                                     | .8/.9                                                                                                                                                                          | .7/.8  | .6/.7  | .5/.5  | .4/.4  | .3/.3  | .2/.3  | .2/.2                  | .8/.9 | .7/.8  | .6/.7  | .5/.5  | .4/.4  | .3/.3  | .2/.3                                             | .2/.2    | 10,425                                           | 10,425          |
|       | Low (1,658)                | 58,800                                                                     | .8/.9                                                                                                                                                                          | .7/.8  | .6/.7  | .5/.5  | .4/.4  | .3/.3  | .2/.3  | .2/.2                  | .8/.9 | .7/.8  | .6/.7  | .5/.5  | .4/.4  | .3/.3  | .2/.3                                             | .2/.2    | 10,400                                           | 10,400          |
|       | Impact                     | *33,200                                                                    | .7/.8                                                                                                                                                                          | .5/.6  | .4/.5  | .3/.4  | .2/.3  | .1/.2  | .1/.2  | .1/.1                  | .7/.8 | .5/.6  | .4/.5  | .3/.4  | .2/.3  | .1/.2  | .1/.2                                             | .1/.1    | 8,250                                            | 8,250           |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.

Low airburst—Precludes fallout.

Impact burst—Produces fallout.

\*Initial effects only. Fallout governs.

Figure 11.1.

# **PROTECTED Personnel Targets Strategic Bomber**

| Yield | HOB option<br>(HOB-meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERAGE<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       | Probable<br>minimum<br>R <sub>D</sub><br><br>(meters) |         | Offset<br>distance<br>d <sub>0</sub><br><br>(meters) |
|-------|----------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------------------------------------------|---------|------------------------------------------------------|
|       |                            |                                                                           | PROMPT CASUALTIES                                                                                                                                                       |       |       |       |       |       |       |       | DELAYED CASUALTIES     |       |       |       |       |       |       |       |                                                       |         |                                                      |
|       |                            |                                                                           | Target radius (meters)                                                                                                                                                  |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                       |         |                                                      |
|       |                            |                                                                           | 800                                                                                                                                                                     | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 | 3,600 | Prompt                                                | Delayed |                                                      |
| KT    | (See note)                 |                                                                           |                                                                                                                                                                         |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |                                                       |         |                                                      |
| 1,000 | High (1,750)               | 32,400                                                                    | .0/.4                                                                                                                                                                   | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | .0/.4                  | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .0/.2 | .1/.2 | .1/.2 | 1,475                                                 | 1,475   | 3,660<br><br>(all<br>yields)                         |
|       | Low (1,260)                | 32,400                                                                    | .0/.4                                                                                                                                                                   | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | .0/.4                  | .0/.4 | .0/.3 | .0/.3 | .0/.3 | .0/.3 | .1/.2 | .1/.2 | 1,700                                                 | 1,700   |                                                      |
|       | Impact                     | *19,100                                                                   | .0/.5                                                                                                                                                                   | .0/.5 | .0/.4 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.3 | .0/.5                  | .0/.5 | .0/.4 | .0/.4 | .1/.4 | .1/.3 | .1/.3 | .1/.3 | 2,100                                                 | 2,100   |                                                      |
| 2,000 |                            |                                                                           | Target radius (meters)                                                                                                                                                  |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                       |         |                                                      |
|       |                            |                                                                           | 1,200                                                                                                                                                                   | 2,000 | 2,800 | 3,600 | 4,400 | 5,200 | 6,000 | 6,800 | 1,200                  | 2,000 | 2,800 | 3,600 | 4,400 | 5,200 | 6,000 | 6,800 |                                                       |         |                                                      |
|       | High (2,023)               | 41,000                                                                    | .0/.5                                                                                                                                                                   | .1/.5 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 |       | .0/.5                  | .1/.5 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 |       | 2,100                                                 | 2,100   |                                                      |
|       | Low (1,406)                | 41,000                                                                    | .0/.5                                                                                                                                                                   | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 |       | .0/.5                  | .1/.4 | .1/.4 | .1/.3 | .1/.2 | .1/.2 | .1/.1 |       | 2,125                                                 | 2,125   |                                                      |
|       | Impact                     | *24,100                                                                   | .1/.6                                                                                                                                                                   | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | .1/.6                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.2 | 2,650                                                 | 2,650   |                                                      |
| 5,000 |                            |                                                                           | Target radius (meters)                                                                                                                                                  |       |       |       |       |       |       |       | Target radius (meters) |       |       |       |       |       |       |       |                                                       |         |                                                      |
|       |                            |                                                                           | 1,000                                                                                                                                                                   | 2,000 | 3,000 | 4,000 | 5,000 | 6,000 | 7,000 | 8,000 | 1,000                  | 2,000 | 3,000 | 4,000 | 5,000 | 6,000 | 7,000 | 8,000 |                                                       |         |                                                      |
|       | High (2,496)               | 58,800                                                                    | .2/.7                                                                                                                                                                   | .2/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.1 | .2/.7                  | .2/.7 | .3/.6 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.1 | 2,950                                                 | 2,950   |                                                      |
|       | Low (1,658)                | 58,800                                                                    | .2/.7                                                                                                                                                                   | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | .2/.7                  | .2/.6 | .2/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 2,950                                                 | 2,950   |                                                      |
|       | Impact                     | *33,200                                                                   | .5/.8                                                                                                                                                                   | .4/.8 | .4/.7 | .3/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | .5/.8                  | .4/.8 | .4/.7 | .3/.6 | .3/.4 | .3/.3 | .2/.3 | .1/.2 | 3,600                                                 | 3,600   |                                                      |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.  
Low airburst—Precludes fallout.  
Impact burst—Produces fallout.

\*Initial effects only. Fallout governs.

Figure 11.2.

STRAT  
BMR 1

<sup>1</sup>Strategic Bomber.

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# **MATERIEL Targets IRBM and Strategic Bomber**

| Yield | HOB option<br>(HOB—meters) | Minimum<br>safe<br>distance<br>(negligible<br>risk,<br>UnW Ex)<br>(meters) | FRACTION OF TARGET COVERED<br>In the column under each target radius, the first figure is<br>the probable minimum coverage; the second figure is the average coverage. |       |       |        |        |        |        |        |                                        |       |                        |       |       |       |       |       |       | Offset<br>distance<br>d <sub>o</sub><br>(meters) |                                        |
|-------|----------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|--------|--------|--------|--------|--------|----------------------------------------|-------|------------------------|-------|-------|-------|-------|-------|-------|--------------------------------------------------|----------------------------------------|
|       |                            |                                                                            | WHEELED VEHICLES                                                                                                                                                       |       |       |        |        |        |        |        |                                        |       | TANKS AND ARTILLERY    |       |       |       |       |       |       |                                                  |                                        |
|       |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |        |        |        |        |        |                                        |       | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 2,400                                                                                                                                                                  | 3,200 | 4,000 | 4,800  | 5,600  | 6,400  | 7,200  | 8,000  | Prob min<br>R <sub>D</sub><br>(meters) | 400   | 800                    | 1,200 | 1,600 | 2,000 | 2,400 | 2,800 | 3,200 |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
| KT    | (See note)                 |                                                                            |                                                                                                                                                                        |       |       |        |        |        |        |        |                                        |       |                        |       |       |       |       |       |       |                                                  |                                        |
| 1,000 | High (1,750)               | 32,400                                                                     | .0/.4                                                                                                                                                                  | .0/.3 | .0/.3 | .0/.2  | .0/.2  | .0/.1  |        |        | 600                                    | .0/.0 |                        |       |       |       |       |       | 0     | 3,660<br>(all<br>yields)                         |                                        |
|       | Low (1,260)                | 32,400                                                                     | .3/.7                                                                                                                                                                  | .3/.6 | .3/.5 | .2/.4  | .2/.4  | .2/.3  | .1/.2  | .1/.2  | 2,975                                  | .0/.2 | .0/.2                  | .0/.2 | .0/.2 | .0/.1 |       |       | 150   |                                                  |                                        |
|       | Impact                     | *19,100                                                                    | .2/.6                                                                                                                                                                  | .2/.5 | .2/.4 | .2/.3  | .2/.2  | .1/.2  | .1/.2  | .1/.1  | 2,775                                  | .0/.4 | .0/.4                  | .0/.4 | .0/.4 | .0/.3 | .0/.3 | .1/.3 | .1/.2 |                                                  | 1,850                                  |
| 2,000 |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |        |        |        |        |        |                                        |       | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 4,000                                                                                                                                                                  | 5,000 | 6,000 | 7,000  | 8,000  | 9,000  | 10,000 | 11,000 | Prob min<br>R <sub>D</sub><br>(meters) | 800   | 1,600                  | 2,400 | 3,200 | 4,000 | 4,800 | 5,600 | 6,400 | Prob min<br>R <sub>D</sub><br>(meters)           |                                        |
|       | High (2,023)               | 41,000                                                                     | .1/.5                                                                                                                                                                  | .1/.4 | .0/.3 | .0/.3  | .0/.2  | .0/.2  | .0/.1  |        | 1,750                                  | .0/.1 |                        |       |       |       |       |       |       | 0                                                |                                        |
|       | Low (1,406)                | 41,000                                                                     | .5/.8                                                                                                                                                                  | .5/.7 | .4/.6 | .3/.5  | .3/.4  | .2/.3  | .1/.2  | .1/.2  | 4,450                                  | .0/.4 | .0/.3                  | .0/.3 | .0/.2 | .0/.2 | .0/.1 |       |       | 825                                              |                                        |
|       | Impact                     | *24,100                                                                    | .4/.6                                                                                                                                                                  | .3/.5 | .3/.4 | .2/.3  | .1/.2  | .1/.2  | .1/.1  |        | 3,675                                  | .0/.6 | .1/.5                  | .1/.5 | .2/.4 | .2/.3 | .2/.2 | .1/.2 | .1/.1 | 2,450                                            |                                        |
| 5,000 |                            |                                                                            | Target radius (meters)                                                                                                                                                 |       |       |        |        |        |        |        |                                        |       | Target radius (meters) |       |       |       |       |       |       |                                                  | Prob min<br>R <sub>D</sub><br>(meters) |
|       |                            |                                                                            | 4,000                                                                                                                                                                  | 6,000 | 8,000 | 10,000 | 12,000 | 14,000 | 16,000 | 18,000 | Prob min<br>R <sub>D</sub><br>(meters) | 2,000 | 3,000                  | 4,000 | 5,000 | 6,000 | 7,000 | 8,000 | 9,000 | Prob min<br>R <sub>D</sub><br>(meters)           |                                        |
|       | High (2,496)               | 58,800                                                                     | .7/.9                                                                                                                                                                  | .5/.7 | .4/.5 | .3/.4  | .2/.3  | .1/.2  | .1/.2  | .1/.1  | 5,375                                  | .0/.2 | .0/.1                  |       |       |       |       |       |       | 100                                              |                                        |
|       | Low (1,658)                | 58,800                                                                     | .9/.9                                                                                                                                                                  | .7/.9 | .6/.7 | .4/.5  | .3/.4  | .2/.3  | .1/.2  | .1/.2  | 6,950                                  | .2/.7 | .2/.6                  | .2/.5 | .1/.4 | .1/.3 | .0/.2 | .0/.2 | .0/.1 | 2,125                                            |                                        |
|       | Impact                     | *33,200                                                                    | .6/.8                                                                                                                                                                  | .5/.6 | .3/.4 | .2/.3  | .1/.2  | .1/.1  |        |        | 5,300                                  | .4/.8 | .4/.7                  | .3/.5 | .3/.4 | .2/.3 | .2/.3 | .1/.2 | .1/.2 | 3,525                                            |                                        |

NOTE: High airburst—Reduces intensity of induced contamination. Precludes fallout.  
 Low airburst—Precludes fallout.  
 Impact burst—Produces fallout.

\* Initial effects only. Fallout governs.

Figure 11.3.

STRAT  
BMR 1

<sup>1</sup>Strategic Bomber.

# **Troop Safety Distances—Meters** **Strategic Bomber**

| Range                        | Yield             | Height of burst option | Minimum Distance Required for Troop Vulnerability and Degree of Risk Shown |          |           |                |          |           |                  |          |           |
|------------------------------|-------------------|------------------------|----------------------------------------------------------------------------|----------|-----------|----------------|----------|-----------|------------------|----------|-----------|
|                              |                   |                        | Unwarned Exposed                                                           |          |           | Warned Exposed |          |           | Warned Protected |          |           |
|                              |                   |                        | NEG Risk                                                                   | MOD Risk | EMER Risk | NEG Risk       | MOD Risk | EMER Risk | NEG Risk         | MOD Risk | EMER Risk |
| Range of aircraft is 2400 km | KILO/<br>1,000 KT | High                   | 32,400                                                                     | 27,800   | 24,900    | 23,000         | 16,700   | 14,000    | 12,900           | 10,200   | 8,000     |
|                              |                   | Low                    | 32,400                                                                     | 27,800   | 24,900    | 23,000         | 16,700   | 14,000    | 12,100           | 9,000    | 7,500     |
|                              |                   | Impact <sup>1</sup>    | 19,100                                                                     | 16,800   | 15,300    | 14,200         | 11,000   | 9,600     | 10,300           | 8,800    | 7,100     |
|                              | LIMA/<br>2,000 KT | High                   | 41,000                                                                     | 35,500   | 31,400    | 28,700         | 20,700   | 17,500    | 14,800           | 11,600   | 8,700     |
|                              |                   | Low                    | 41,000                                                                     | 35,500   | 31,400    | 28,700         | 20,700   | 17,600    | 13,800           | 11,000   | 8,100     |
|                              |                   | Impact <sup>1</sup>    | 24,100                                                                     | 20,700   | 19,300    | 17,500         | 13,200   | 11,200    | 11,900           | 10,000   | 7,700     |
|                              | MIKE/<br>5,000 KT | High                   | 58,800                                                                     | 49,700   | 42,400    | 39,600         | 29,100   | 24,000    | 17,900           | 13,800   | 10,200    |
|                              |                   | Low                    | 58,800                                                                     | 49,700   | 42,400    | 39,600         | 29,100   | 24,100    | 16,800           | 13,200   | 9,200     |
|                              |                   | Impact <sup>1</sup>    | 33,200                                                                     | 28,700   | 25,500    | 23,200         | 17,600   | 14,800    | 14,800           | 12,200   | 9,200     |

NOTE: The troop safety distances include the safety radius for the yield plus the buffer distance for delivery perpendicular to a straight-line friendly disposition. See figure 11.5 for special friendly troop orientations.

<sup>1</sup>Initial effects only. Fallout governs.

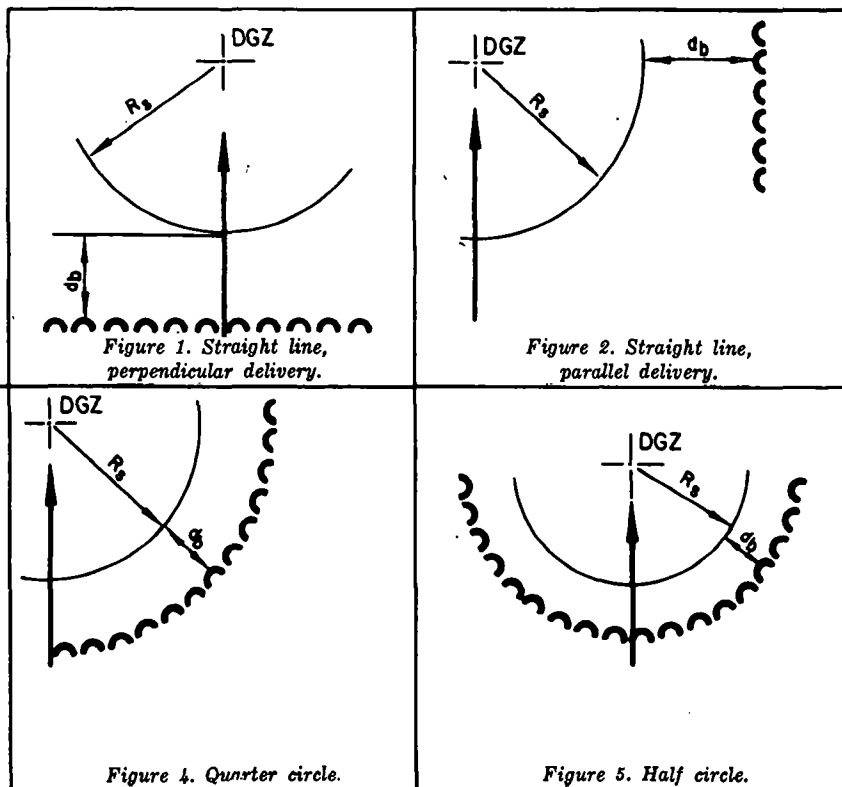
Figure 11.4.

# SUPPLEMENTARY TROOP SAFETY Tables Strategic Bomber

The troop safety distances in figure 11.4 are based on the friendly troop orientation shown in figure 1, below. The circular delivery pattern of the strategic bomber may require modification of the tabulated troop safety distances for friendly troop orientations other than a straight line with perpendicular delivery. Special friendly troop orientations for which corrections have been computed are shown in figures 2-5, below.

## Special Troop Safety Orientations

**LEGEND**  
 DGZ - Desired ground zero  
 $R_s$  - Safety radius.  
 $d_b$  - Buffer distance.  
 ~~~~~ - Friendly troops.  
 → - Direction of fire.



When the special friendly troop orientations shown above occur, the tabulated troop safety distances in figure 11.4 must be increased where plus (+) values are shown below; the tabulated troop safety distances may be decreased where minus (-) values are shown below. All figures shown in meters.

| All Height of Burst Options—All Yields | | | | |
|--|--|---|------------------------------|---------------------------|
| Range
(meters) | Straight line,
parallel delivery
(fig 2) | Straight line,
45° delivery
(fig 3) | Quarter
circle
(fig 4) | Half
circle
(fig 5) |
| All
ranges | 0 | 0 | +600 | +1,200 |

Figure 11.5.

STRAT
BMR 1

KILO/1,000 KT

CASUALTY and DAMAGE Tables

Strategic Bomber

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | | | | | | | | | | | | | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 2,200 | 5,350 | 5,350 | 1,425 | 1,425 | | 375 | | | 5,700 | 5,700 | 9,150 | 9,150 | 28,300 | 23,700 | 20,800 | 18,900 | 12,500 | 9,800 | 9,075 | 6,275 | 4,000 |
| 2,100 | 5,450 | 5,450 | 1,525 | 1,525 | | 750 | | | 5,650 | 5,650 | 9,000 | 9,000 | 28,300 | 23,700 | 20,800 | 18,900 | 12,500 | 9,800 | 8,925 | 6,150 | 3,925 |
| 2,000 | 5,475 | 5,475 | 1,600 | 1,600 | | 1,000 | | | 5,600 | 5,600 | 8,800 | 8,800 | 28,300 | 23,700 | 20,800 | 18,900 | 12,500 | 9,800 | 8,775 | 6,050 | 3,850 |
| 1,900 | 5,475 | 5,475 | 1,675 | 1,675 | 0 | 1,175 | | | 5,500 | 5,500 | 8,600 | 8,600 | 28,300 | 23,700 | 20,800 | 18,900 | 12,600 | 9,800 | 8,600 | 5,925 | 3,775 |
| 1,800 | 5,450 | 5,450 | 1,725 | 1,725 | 375 | 1,325 | | | 5,400 | 5,400 | 8,500 | 8,500 | 28,400 | 23,700 | 20,800 | 18,900 | 12,600 | 9,800 | 8,450 | 5,825 | 3,700 |
| 1,700 | 5,450 | 5,450 | 1,775 | 1,775 | 700 | 1,450 | 0 | 0 | 5,350 | 5,350 | 8,350 | 8,350 | 28,400 | 23,700 | 20,900 | 18,900 | 12,600 | 9,800 | 8,275 | 5,725 | 3,600 |
| 1,600 | 5,475 | 5,475 | 1,800 | 1,800 | 900 | 1,550 | 125 | 125 | 5,250 | 5,250 | 8,200 | 8,200 | 28,400 | 23,700 | 20,900 | 18,900 | 12,600 | 9,900 | 8,975 | 5,650 | 3,500 |
| 1,500 | 5,475 | 5,475 | 1,825 | 1,825 | 1,075 | 1,650 | 350 | 550 | 5,150 | 5,150 | 8,050 | 8,050 | 28,400 | 23,700 | 20,900 | 18,900 | 12,600 | 9,900 | 7,900 | 5,575 | 3,375 |
| 1,400 | 5,475 | 5,475 | 1,825 | 1,825 | 1,200 | 1,725 | 500 | 775 | 5,050 | 5,050 | 7,900 | 7,900 | 28,400 | 23,700 | 20,900 | 19,000 | 12,600 | 9,900 | 7,725 | 5,500 | 3,250 |
| 1,300 | 5,475 | 5,475 | 1,800 | 1,800 | 1,300 | 1,800 | 600 | 925 | 4,950 | 4,950 | 7,750 | 7,750 | 28,400 | 23,700 | 20,900 | 19,000 | 12,600 | 9,900 | 7,575 | 5,425 | 3,125 |
| 1,200 | 5,475 | 5,475 | 1,775 | 1,775 | 1,400 | 1,875 | 700 | 1,050 | 4,900 | 4,900 | 7,600 | 7,600 | 28,400 | 23,800 | 20,900 | 19,000 | 12,600 | 9,900 | 7,450 | 5,350 | 3,025 |
| 1,100 | 5,475 | 5,475 | 1,750 | 1,750 | 1,475 | 1,925 | 775 | 1,175 | 4,800 | 4,800 | 7,450 | 7,450 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 9,900 | 7,325 | 5,275 | 2,950 |
| 1,050 | 5,475 | 5,475 | 1,750 | 1,750 | 1,500 | 1,975 | 825 | 1,200 | 4,750 | 4,750 | 7,400 | 7,400 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 9,900 | 7,250 | 5,250 | 2,925 |
| 1,000 | 5,475 | 5,475 | 1,725 | 1,725 | 1,550 | 2,000 | 850 | 1,250 | 4,700 | 4,700 | 7,350 | 7,350 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 10,000 | 7,200 | 5,225 | 2,900 |
| 950 | 5,475 | 5,475 | 1,725 | 1,725 | 1,675 | 2,025 | 875 | 1,300 | 4,650 | 4,650 | 7,250 | 7,250 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 10,000 | 7,150 | 5,200 | 2,875 |
| 900 | 5,475 | 5,475 | 1,700 | 1,700 | 1,850 | 2,050 | 925 | 1,325 | 4,600 | 4,600 | 7,200 | 7,200 | 28,400 | 23,800 | 20,900 | 19,000 | 12,700 | 10,000 | 7,075 | 5,150 | 2,875 |
| 850 | 5,475 | 5,475 | 1,700 | 1,700 | 2,025 | 2,050 | 975 | 1,350 | 4,550 | 4,550 | 7,150 | 7,150 | 27,800 | 23,500 | 20,600 | 18,800 | 12,600 | 9,900 | 7,025 | 5,125 | 2,850 |
| 800 | 5,475 | 5,475 | 1,700 | 1,700 | 2,150 | 2,150 | 1,000 | 1,400 | 4,550 | 4,550 | 7,100 | 7,100 | 27,200 | 22,900 | 20,000 | 18,300 | 12,300 | 9,600 | 6,975 | 5,100 | 2,850 |
| 750 | 5,450 | 5,450 | 1,700 | 1,700 | 2,250 | 2,250 | 1,050 | 1,425 | 4,500 | 4,500 | 7,050 | 7,050 | 26,500 | 22,200 | 19,500 | 17,800 | 11,900 | 9,400 | 6,925 | 5,075 | 2,850 |
| 700 | 5,450 | 5,450 | 1,700 | 1,700 | 2,300 | 2,300 | 1,075 | 1,450 | 4,450 | 4,450 | 7,000 | 7,000 | 25,800 | 21,600 | 18,900 | 17,300 | 11,600 | 9,100 | 6,875 | 5,050 | 2,850 |
| 650 | 5,425 | 5,425 | 1,700 | 1,700 | 2,350 | 2,350 | 1,125 | 1,475 | 4,400 | 4,400 | 6,950 | 6,950 | 25,000 | 21,000 | 18,300 | 16,800 | 11,300 | 8,900 | 6,825 | 5,025 | 2,850 |
| 600 | 5,400 | 5,400 | 1,725 | 1,725 | 2,375 | 2,375 | 1,150 | 1,475 | 4,400 | 4,400 | 6,900 | 6,900 | 24,300 | 20,400 | 17,800 | 16,300 | 11,000 | 8,600 | 6,775 | 5,000 | 2,850 |
| 500 | 5,325 | 5,325 | 1,750 | 1,750 | 2,425 | 2,425 | 1,200 | 1,525 | 4,350 | 4,350 | 6,800 | 6,800 | 22,700 | 19,100 | 16,700 | 15,300 | 10,300 | 8,100 | 6,675 | 4,950 | 2,875 |
| 400 | 5,225 | 5,225 | 1,800 | 1,800 | 2,450 | 2,450 | 1,225 | 1,550 | 4,300 | 4,300 | 6,650 | 6,650 | 21,200 | 17,800 | 15,600 | 14,300 | 9,600 | 7,600 | 6,575 | 4,900 | 2,900 |
| 300 | 5,075 | 5,075 | 1,850 | 1,850 | 2,450 | 2,450 | 1,250 | 1,575 | 4,250 | 4,250 | 6,550 | 6,550 | 19,800 | 16,500 | 14,500 | 13,300 | 9,000 | 7,100 | 6,500 | 4,850 | 2,925 |
| 200 | 4,850 | 4,850 | 1,925 | 1,925 | 2,375 | 2,375 | 1,275 | 1,600 | 4,200 | 4,200 | 6,500 | 6,500 | 18,300 | 15,200 | 13,400 | 12,200 | 8,300 | 6,600 | 6,400 | 4,825 | 2,950 |
| 100 | 4,600 | 4,600 | 2,000 | 2,000 | 2,200 | 2,225 | 1,300 | 1,600 | 4,150 | 4,150 | 6,400 | 6,400 | 16,700 | 14,000 | 12,200 | 11,200 | 7,600 | 6,100 | 6,325 | 4,775 | 2,975 |
| 0 | 4,275 | 4,275 | 2,100 | 2,100 | 1,850 | 2,225 | 1,300 | 1,600 | 4,100 | 4,100 | 6,300 | 6,300 | 15,100 | 12,800 | 11,300 | 10,200 | 7,000 | 5,600 | 6,250 | 4,750 | 3,025 |

HOB_{fs} = 560mLow HOB_{min} = 530mHigh HOB_{min} = 1200mHOB_{gg} = HOB_{fs} + 3.5 PE_h mHOB_{gg} = HOB_{fs} + 3.0 PE_h mHOB_{g0} = HOB_{fs} + 1.9 PE_h m

Figure 11.6a.

CASUALTY and DAMAGE Tables
Strategic Bomber
All figures in meters

KILO/1,000 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|-------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
flat
brgs | 2d degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (Rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| 2,200 | 375 | | | 2,075 | 0 | 4,275 | 13,925 | 6,875 | 3,600 | 15,875 | | | 0 | | | | 0 | |
| 2,100 | 700 | | | 2,300 | 2,750 | 4,250 | 13,950 | 6,900 | 3,650 | 15,800 | | | | | | | | |
| 2,000 | 1,000 | | | 2,500 | 2,775 | 4,200 | 13,950 | 6,950 | 3,700 | 15,725 | | | 0-5 | | | | 0-450 | |
| 1,900 | 1,350 | | 0 | 2,675 | 2,800 | 4,150 | 13,975 | 6,975 | 3,750 | 15,625 | | | 0-5 | | | | 0-800 | |
| 1,800 | 1,775 | 0 | 275 | 2,850 | 2,825 | 4,100 | 13,975 | 7,000 | 3,800 | 15,525 | | | 0-10 | | | | 0-1,000 | |
| 1,700 | 2,675 | 25 | 600 | 2,975 | 2,850 | 4,050 | 14,000 | 7,025 | 3,850 | 15,450 | | | 0-15 | | 0 | | 0-1,050 | |
| 1,600 | 3,075 | 225 | 875 | 3,100 | 2,875 | 4,000 | 14,000 | 7,050 | 3,900 | 15,350 | | | 0-30 | | 0-400 | | 0-1,300 | |
| 1,500 | 3,275 | 450 | 1,125 | 3,200 | 2,900 | 3,975 | 14,025 | 7,075 | 3,925 | 15,250 | | | 5-50 | | | 0-700 | 50-1,400 | |
| 1,400 | 3,400 | 675 | 1,325 | 3,300 | 2,925 | 3,925 | 14,025 | 7,075 | 3,975 | 15,125 | 0 | 0-10 | 5-100 | | 0 | 0-900 | 550-1,500 | |
| 1,300 | 3,525 | 875 | 1,500 | 3,400 | 2,950 | 3,900 | 14,050 | 7,100 | 4,000 | 15,025 | 0-5 | 0-15 | 10-170 | | 0-50 | 0-1,050 | 750-1,600 | |
| 1,200 | 3,650 | 1,100 | 1,600 | 3,500 | 2,950 | 3,875 | 14,050 | 7,125 | 4,025 | 14,925 | 0-5 | 0-25 | 15-300 | | 0-500 | 0-1,150 | 900-1,700 | |
| 1,100 | 3,750 | 1,325 | 1,725 | 3,600 | 2,975 | 3,850 | 14,050 | 7,125 | 4,075 | 14,800 | 0-10 | 5-50 | 25-580 | | 0-700 | 50-1,250 | 1,050-1,750 | |
| 1,050 | 3,800 | 1,425 | 1,800 | 3,650 | 2,975 | 3,825 | 14,050 | 7,150 | 4,075 | 14,750 | 0-10 | 5-65 | 35-780 | | 0-800 | 350-13,00 | 1,100-1,800 | |
| 1,000 | 3,850 | 1,550 | 1,850 | 3,700 | 3,000 | 3,800 | 14,075 | 7,150 | 4,100 | 14,675 | 0-15 | 5-95 | 50-1,140 | | 0-850 | 500-1,350 | 1,150-1,800 | |
| 950 | 3,900 | 1,675 | 1,900 | 3,725 | 3,000 | 3,775 | 14,075 | 7,150 | 4,100 | 14,625 | 0-15 | 10-130 | 65-1,560 | | 0-900 | 600-1,400 | 1,200-1,850 | |
| 900 | 3,950 | 1,850 | 1,950 | 3,775 | 3,025 | 3,775 | 14,075 | 7,175 | 4,125 | 14,575 | 0-20 | 10-180 | 90-2,160 | | 0-950 | 650-1,400 | 1,200-1,850 | |
| 850 | 4,000 | 2,025 | 2,000 | 3,825 | 3,025 | 3,750 | 13,800 | 7,075 | 4,125 | 14,500 | 0-30 | 15-260 | 125-3,120 | | 0-1,000 | 700-1,450 | 1,250-1,900 | |
| 800 | 4,050 | 2,150 | 2,050 | 3,875 | 3,050 | 3,750 | 13,400 | 6,900 | 4,025 | 14,450 | 5-45 | 15-370 | 180-4,440 | 0 | 50-1,050 | 800-1,450 | 1,300-1,900 | 0 |
| 750 | 4,100 | 2,250 | 2,075 | 3,900 | 3,050 | 3,725 | 13,025 | 6,700 | 3,925 | 14,375 | 5-65 | 25-550 | 270-6,600 | 0-5 | 300-1,100 | 850-1,500 | 1,300-1,950 | 0-50 |
| 700 | 4,125 | 2,300 | 2,125 | 3,950 | 3,050 | 3,700 | 12,625 | 6,525 | 3,825 | 14,325 | 5-95 | 35-835 | 400-9,900 | 0-5 | 400-1,100 | 900-1,500 | 1,350-1,950 | 0-300 |
| 650 | 4,125 | 2,350 | 2,175 | 3,975 | 3,075 | 3,675 | 12,225 | 6,350 | 3,725 | 14,250 | 10-145 | 55-1,300 | 63-15,600 | 0-5 | 500-1,150 | 900-1,550 | 1,350-1,950 | 0-400 |
| 600 | 4,150 | 2,375 | 2,200 | 4,000 | 3,075 | 3,650 | 11,850 | 6,150 | 3,625 | 14,175 | 10-220 | 80-2,000 | 960-24,000 | 0-10 | 550-12,00 | 950-1,550 | 1,400-2,000 | 0-450 |
| 500 | 4,125 | 2,425 | 2,275 | 4,050 | 3,075 | 3,625 | 11,050 | 5,775 | 3,400 | 14,050 | FALLOUT GOVERNS | | | | | | | |
| 400 | 4,075 | 2,450 | 2,325 | 4,025 | 3,100 | 3,575 | 10,275 | 5,400 | 3,200 | 13,925 | | | | | | | | |
| 300 | 4,000 | 2,450 | 2,275 | 3,950 | 3,075 | 3,475 | 9,475 | 5,050 | 3,000 | 13,775 | | | | | | | | |
| 200 | 3,825 | 2,375 | 2,125 | 3,975 | 3,050 | 3,400 | 8,700 | 4,675 | 2,800 | 13,625 | | | | | | | | |
| 100 | 3,350 | 2,200 | 1,875 | 3,500 | 2,825 | 3,275 | 7,925 | 4,300 | 2,575 | 13,500 | | | | | | | | |
| 0 | 2,775 | 1,850 | 1,500 | 3,150 | 2,525 | 3,200 | 7,125 | 3,925 | 2,375 | 13,350 | | | | | | | | |

Figure 11.6a continued.

STRAT
BMR 1

CASUALTY and DAMAGE Tables
Strategic Bomber

All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|--------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelter | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 2,200 | 7,200 | 7,200 | 2,225 | 2,225 | | 1,150 | | | 6,700 | 6,700 | 10,450 | 10,450 | 37,000 | 31,400 | 27,300 | 24,600 | 16,600 | 13,400 | 10,525 | 7,275 | 4,600 |
| 2,100 | 7,200 | 7,200 | 2,250 | 2,250 | 0 | 1,300 | 0 | 0 | 6,600 | 6,600 | 10,300 | 10,300 | 37,000 | 31,400 | 27,300 | 24,600 | 16,600 | 13,400 | 10,325 | 7,200 | 4,500 |
| 2,000 | 7,225 | 7,225 | 2,275 | 2,275 | 500 | 1,450 | 200 | 200 | 6,550 | 6,550 | 10,150 | 10,150 | 37,000 | 31,400 | 27,300 | 24,600 | 16,600 | 13,400 | 10,150 | 7,100 | 4,375 |
| 1,900 | 7,225 | 7,225 | 2,300 | 2,300 | 800 | 1,575 | 425 | 425 | 6,450 | 6,450 | 10,000 | 10,000 | 37,000 | 31,400 | 27,300 | 24,600 | 16,600 | 13,500 | 9,975 | 7,025 | 4,250 |
| 1,800 | 7,225 | 7,225 | 2,300 | 2,300 | 1,000 | 1,700 | 600 | 600 | 6,400 | 6,400 | 9,850 | 9,850 | 37,000 | 31,400 | 27,300 | 24,700 | 16,600 | 13,500 | 9,775 | 6,950 | 4,125 |
| 1,700 | 7,225 | 7,225 | 2,275 | 2,275 | 1,175 | 1,800 | 700 | 700 | 6,300 | 6,300 | 9,700 | 9,700 | 37,000 | 31,500 | 27,400 | 24,700 | 16,600 | 13,500 | 9,625 | 6,875 | 4,000 |
| 1,600 | 7,225 | 7,225 | 2,250 | 2,250 | 1,300 | 1,875 | 800 | 800 | 6,200 | 6,200 | 9,550 | 9,550 | 37,000 | 31,500 | 27,400 | 24,700 | 16,600 | 13,500 | 9,500 | 6,800 | 3,900 |
| 1,500 | 7,225 | 7,225 | 2,225 | 2,225 | 1,475 | 1,975 | 900 | 975 | 6,150 | 6,150 | 9,400 | 9,400 | 37,000 | 31,500 | 27,400 | 24,700 | 16,600 | 13,500 | 9,375 | 6,725 | 3,825 |
| 1,400 | 7,225 | 7,225 | 2,225 | 2,225 | 1,700 | 2,050 | 975 | 1,125 | 6,050 | 6,050 | 9,250 | 9,250 | 37,000 | 31,500 | 27,400 | 24,700 | 16,600 | 13,500 | 9,250 | 6,675 | 3,750 |
| 1,300 | 7,225 | 7,225 | 2,200 | 2,200 | 1,950 | 2,100 | 1,050 | 1,225 | 5,950 | 5,950 | 9,100 | 9,100 | 37,000 | 31,500 | 27,400 | 24,700 | 16,700 | 13,500 | 9,125 | 6,600 | 3,675 |
| 1,200 | 7,225 | 7,225 | 2,175 | 2,175 | 2,200 | 2,200 | 1,100 | 1,325 | 5,900 | 5,900 | 8,950 | 8,950 | 37,000 | 31,500 | 27,400 | 24,700 | 16,700 | 13,500 | 9,000 | 6,550 | 3,625 |
| 1,100 | 7,225 | 7,225 | 2,150 | 2,150 | 2,550 | 2,550 | 1,150 | 1,425 | 5,800 | 5,800 | 8,800 | 8,800 | 36,300 | 30,900 | 27,000 | 24,200 | 16,300 | 13,300 | 8,900 | 6,475 | 3,600 |
| 1,050 | 7,225 | 7,225 | 2,125 | 2,125 | 2,700 | 2,700 | 1,175 | 1,450 | 5,800 | 5,800 | 8,700 | 8,700 | 35,500 | 30,200 | 26,500 | 23,700 | 16,000 | 13,000 | 8,850 | 6,450 | 3,600 |
| 1,000 | 7,225 | 7,225 | 2,125 | 2,125 | 2,850 | 2,850 | 1,175 | 1,500 | 5,750 | 5,750 | 8,650 | 8,650 | 34,800 | 29,600 | 26,000 | 23,200 | 15,700 | 12,700 | 8,775 | 6,425 | 3,575 |
| 950 | 7,200 | 7,200 | 2,125 | 2,125 | 2,950 | 2,950 | 1,200 | 1,525 | 5,700 | 5,700 | 8,550 | 8,550 | 34,000 | 29,000 | 25,400 | 22,700 | 15,400 | 12,500 | 8,725 | 6,400 | 3,575 |
| 900 | 7,175 | 7,175 | 2,150 | 2,150 | 3,025 | 3,025 | 1,225 | 1,550 | 5,650 | 5,650 | 8,450 | 8,450 | 33,300 | 28,300 | 24,900 | 22,200 | 15,000 | 12,200 | 8,675 | 6,375 | 3,575 |
| 850 | 7,175 | 7,175 | 2,150 | 2,150 | 3,075 | 3,075 | 1,225 | 1,575 | 5,600 | 5,600 | 8,400 | 8,400 | 32,600 | 27,700 | 24,300 | 21,700 | 14,600 | 11,900 | 8,625 | 6,350 | 3,575 |
| 800 | 7,150 | 7,150 | 2,150 | 2,150 | 3,125 | 3,125 | 1,250 | 1,600 | 5,600 | 5,600 | 8,350 | 8,350 | 31,800 | 27,000 | 23,800 | 21,200 | 14,300 | 11,600 | 8,575 | 6,325 | 3,575 |
| 750 | 7,100 | 7,100 | 2,175 | 2,175 | 3,150 | 3,150 | 1,275 | 1,625 | 5,550 | 5,550 | 8,250 | 8,250 | 31,100 | 26,400 | 23,300 | 20,700 | 14,000 | 11,300 | 8,525 | 6,275 | 3,600 |
| 700 | 7,075 | 7,075 | 2,175 | 2,175 | 3,175 | 3,175 | 1,275 | 1,650 | 5,500 | 5,500 | 8,200 | 8,200 | 30,400 | 25,700 | 22,800 | 20,200 | 13,700 | 11,100 | 8,475 | 6,250 | 3,600 |
| 650 | 7,025 | 7,025 | 2,200 | 2,200 | 3,200 | 3,200 | 1,300 | 1,675 | 5,450 | 5,450 | 8,150 | 8,150 | 29,600 | 25,100 | 22,300 | 19,800 | 13,400 | 10,700 | 8,425 | 6,250 | 3,625 |
| 600 | 6,975 | 6,975 | 2,225 | 2,225 | 3,200 | 3,200 | 1,325 | 1,700 | 5,450 | 5,450 | 8,050 | 8,050 | 28,900 | 24,400 | 21,700 | 19,300 | 13,000 | 10,500 | 8,375 | 6,225 | 3,625 |
| 500 | 6,875 | 6,875 | 2,275 | 2,275 | 3,225 | 3,225 | 1,375 | 1,725 | 5,350 | 5,350 | 7,950 | 7,950 | 27,400 | 23,200 | 20,700 | 18,300 | 12,400 | 10,000 | 8,275 | 6,175 | 3,650 |
| 400 | 6,725 | 6,725 | 2,325 | 2,325 | 3,250 | 3,250 | 1,400 | 1,750 | 5,300 | 5,300 | 7,850 | 7,850 | 25,900 | 21,900 | 19,600 | 17,300 | 11,700 | 9,400 | 8,200 | 6,125 | 3,675 |
| 300 | 6,525 | 6,525 | 2,400 | 2,400 | 3,175 | 3,175 | 1,425 | 1,775 | 5,200 | 5,200 | 7,750 | 7,750 | 24,500 | 20,600 | 18,500 | 16,400 | 11,100 | 8,900 | 8,100 | 6,075 | 3,700 |
| 200 | 6,275 | 6,275 | 2,475 | 2,475 | 3,050 | 3,050 | 1,450 | 1,775 | 5,150 | 5,150 | 7,650 | 7,650 | 22,200 | 19,300 | 17,400 | 15,400 | 10,400 | 8,400 | 8,025 | 6,025 | 3,750 |
| 100 | 5,975 | 5,975 | 2,550 | 2,550 | 2,825 | 2,825 | 1,450 | 1,800 | 5,100 | 5,100 | 7,550 | 7,550 | 21,500 | 18,000 | 16,400 | 14,500 | 9,700 | 7,800 | 7,950 | 6,000 | 3,775 |
| 0 | 5,650 | 5,650 | 2,650 | 2,650 | 2,450 | 2,475 | 1,450 | 1,800 | 5,050 | 5,050 | 7,500 | 7,500 | 20,100 | 16,700 | 15,300 | 13,500 | 9,200 | 7,300 | 7,875 | 5,975 | 3,800 |

HOB_{fs} = 706mLow HOB_{min} = 668mHigh HOB_{min} = 1,512mHOB₉₉ = HOB_{fs} + 3.5 PE_h mHOB₉₈ = HOB_{fs} + 3.0 PE_h mHOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 11.6b.

CASUALTY and DAMAGE Tables
Strategic Bomber
All figures in meters

LIMA/2,000 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|-------------------------------|----------------------------------|------------------------------|--|--|--------------------------------|-----------------|------------------------------|------------------------------|----------------------------|--------------------------|------------|-------------|------------|-----------------|------------|-------------|------------|
| HOB | Mod
dam
wheeled
vehs | Mod
dam
tks
and
arty | Severe
dam
sup
deps | Severe
dam
radios
and elec
equip | Severe
dam
hwy and
RR
brgs | Severe
dam
float
brgs | 2d degree burns | | | 1 PSI
over-
pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed
skin | 2-layer
summer
uniform | 4-layer
winter
uniform | | Intensity at GZ (rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type
I | Type
II | Type
III | Type
IV | Type
I | Type
II | Type
III | Type
IV |
| | | | | | | | | | | | | | | | | | | |
| 2,200 | 2,875 | 0 | 600 | 3,850 | 3,500 | 5,075 | 18,475 | 9,350 | 5,125 | 19,500 | | | 0 | | | | 0 | |
| 2,100 | 3,825 | 125 | 925 | 3,975 | 3,525 | 5,050 | 18,475 | 9,375 | 5,175 | 19,400 | | | 0-5 | | | | 0-450 | |
| 2,000 | 4,075 | 350 | 1,200 | 4,100 | 3,550 | 5,000 | 18,500 | 9,400 | 5,200 | 19,325 | | | 0-5 | | | | 0-800 | |
| 1,900 | 4,300 | 575 | 1,450 | 4,200 | 3,575 | 4,975 | 18,500 | 9,400 | 5,250 | 19,200 | | | 0-10 | | | | 0-1,000 | |
| 1,800 | 4,425 | 800 | 1,675 | 4,325 | 3,600 | 4,925 | 18,525 | 9,425 | 5,275 | 19,100 | | 0 | 0-20 | | | 0 | 0-1,200 | |
| 1,700 | 4,575 | 1,025 | 1,875 | 4,425 | 3,625 | 4,900 | 18,525 | 9,450 | 5,325 | 19,000 | | 0-5 | 0-30 | | | 0-400 | 0-1,350 | |
| 1,600 | 4,700 | 1,250 | 2,025 | 4,525 | 3,625 | 4,875 | 18,525 | 9,475 | 5,350 | 18,900 | | 0-5 | 5-55 | | | 0-700 | 400-1,450 | |
| 1,500 | 4,825 | 1,475 | 2,150 | 4,650 | 3,650 | 4,850 | 18,550 | 9,475 | 5,375 | 18,775 | | 0-10 | 5-100 | | | 0-900 | 700-1,550 | |
| 1,400 | 4,950 | 1,700 | 2,275 | 4,750 | 3,675 | 4,800 | 18,550 | 9,500 | 5,400 | 18,675 | 0 | 0-20 | 10-190 | | 0 | 0-1,050 | 900-1,650 | |
| 1,300 | 5,050 | 1,950 | 2,400 | 4,825 | 3,700 | 4,775 | 18,550 | 9,500 | 5,425 | 18,550 | 0-5 | 0-30 | 15-340 | | 0-50 | 0-1,200 | 1,050-1,750 | |
| 1,200 | 5,150 | 2,200 | 2,500 | 4,925 | 3,725 | 4,750 | 18,550 | 9,525 | 5,450 | 18,425 | 0-5 | 5-50 | 25-600 | | 0-750 | 50-1,300 | 1,150-1,800 | |
| 1,100 | 5,250 | 2,550 | 2,600 | 5,025 | 3,750 | 4,700 | 18,025 | 9,325 | 5,425 | 18,300 | 0-10 | 5-100 | 50-1,160 | | 0-900 | 500-1,400 | 1,250-1,850 | |
| 1,050 | 5,300 | 2,700 | 2,650 | 5,075 | 3,750 | 4,675 | 17,625 | 9,125 | 5,325 | 18,250 | 0-15 | 10-130 | 65-1,560 | | 0-950 | 600-1,400 | 1,300-1,900 | |
| 1,000 | 5,350 | 2,850 | 2,700 | 5,125 | 3,775 | 4,650 | 17,225 | 8,925 | 5,225 | 18,175 | 0-25 | 10-190 | 95-2,280 | | 0-1,000 | 700-1,450 | 1,350-1,950 | |
| 950 | 5,400 | 2,950 | 2,750 | 5,150 | 3,775 | 4,650 | 16,825 | 8,750 | 5,125 | 18,125 | 0-30 | 15-260 | 125-3,120 | | 0-1,050 | 750-1,500 | 1,400-1,950 | |
| 900 | 5,425 | 3,025 | 2,800 | 5,200 | 3,800 | 4,625 | 16,400 | 8,550 | 5,000 | 18,050 | 5-40 | 15-360 | 175-4,320 | | 50-1,100 | 800-1,550 | 1,400-2,000 | |
| 850 | 5,450 | 3,075 | 2,825 | 5,225 | 3,800 | 4,600 | 16,000 | 8,350 | 4,900 | 18,000 | 5-60 | 25-520 | 250-6,240 | 0 | 350-1,150 | 850-1,550 | 1,450-2,000 | 0 |
| 800 | 5,475 | 3,125 | 2,875 | 5,275 | 3,825 | 4,575 | 15,600 | 8,150 | 4,800 | 17,925 | 5-85 | 30-740 | 360-8,880 | 0-5 | 450-1,600 | 900-1,600 | 1,450-2,000 | 0-50 |
| 750 | 5,475 | 3,150 | 2,900 | 5,300 | 3,825 | 4,575 | 15,200 | 7,950 | 4,700 | 17,875 | 5-125 | 45-1,100 | 530-13,200 | 0-5 | 550-1,200 | 950-1,600 | 1,500-2,050 | 0-300 |
| 700 | 5,475 | 3,175 | 2,950 | 5,325 | 3,850 | 4,550 | 14,800 | 7,750 | 4,575 | 17,800 | FALLOUT COVERS | | | | | | | |
| 650 | 5,450 | 3,200 | 2,975 | 5,350 | 3,850 | 4,525 | 14,400 | 7,575 | 4,475 | 17,725 | | | | | | | | |
| 600 | 5,450 | 3,200 | 3,000 | 5,350 | 3,850 | 4,475 | 14,000 | 7,375 | 4,375 | 17,675 | | | | | | | | |
| 500 | 5,375 | 3,225 | 3,050 | 5,325 | 3,850 | 4,450 | 13,175 | 6,975 | 4,175 | 17,525 | | | | | | | | |
| 400 | 5,300 | 3,250 | 3,025 | 5,225 | 3,825 | 4,400 | 12,375 | 6,600 | 3,950 | 17,400 | | | | | | | | |
| 300 | 5,175 | 3,175 | 2,900 | 5,075 | 3,750 | 4,300 | 11,575 | 6,200 | 3,750 | 17,250 | | | | | | | | |
| 200 | 4,825 | 3,050 | 2,700 | 4,850 | 3,625 | 4,175 | 10,750 | 5,800 | 3,525 | 17,100 | | | | | | | | |
| 100 | 4,275 | 2,825 | 2,400 | 4,525 | 3,425 | 4,075 | 9,950 | 5,425 | 3,325 | 16,950 | | | | | | | | |
| 0 | 3,675 | 2,450 | 2,000 | 4,150 | 3,200 | 3,925 | 9,150 | 5,025 | 3,100 | 16,800 | | | | | | | | |

Figure 11.6b continued.

CASUALTY and DAMAGE Tables
Strategic Bomber
All figures in meters

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------|-------------------|---------|---------------------|---------|--------------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|-------------------|--------|--------|-----------------|--------|--------|-------------------|-------|-------|
| HOB | Exposed personnel | | Protected personnel | | Personnel in APC's | | Personnel in 1-m earth shelters | | Personnel in multistory apt bldgs | | Personnel in framehouses | | Radius of safety | | | | | | | | |
| | | | | | | | | | | | | | Unwarned, exposed | | | Warned, exposed | | | Warned, protected | | |
| | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Prompt | Delayed | Neg | Mod | Emer | Neg | Mod | Emer | Neg | Mod | Emer |
| 2,500 | 10,425 | 10,425 | 3,125 | 3,125 | 1,025 | 1,475 | 725 | 725 | 8,700 | 8,700 | 13,600 | 13,600 | 54,500 | 45,600 | 38,400 | 35,500 | 25,000 | 19,900 | 13,350 | 9,475 | 5,675 |
| 2,400 | 10,425 | 10,425 | 3,100 | 3,100 | 1,250 | 1,625 | 850 | 850 | 8,600 | 8,600 | 13,450 | 13,450 | 54,500 | 45,700 | 38,400 | 35,500 | 25,000 | 19,900 | 13,200 | 9,400 | 5,550 |
| 2,300 | 10,425 | 10,425 | 3,075 | 3,075 | 1,500 | 1,750 | 950 | 950 | 8,500 | 8,500 | 13,300 | 13,300 | 54,500 | 45,700 | 38,400 | 35,500 | 25,000 | 20,000 | 13,075 | 9,325 | 5,425 |
| 2,200 | 10,425 | 10,425 | 3,075 | 3,075 | 1,750 | 1,875 | 1,050 | 1,050 | 8,400 | 8,400 | 13,200 | 13,200 | 54,500 | 45,700 | 38,400 | 35,500 | 25,000 | 20,000 | 12,925 | 9,250 | 5,325 |
| 2,100 | 10,425 | 10,425 | 3,050 | 3,050 | 1,975 | 2,000 | 1,150 | 1,150 | 8,350 | 8,350 | 13,050 | 13,050 | 54,500 | 45,700 | 38,400 | 35,500 | 25,000 | 20,000 | 12,800 | 9,175 | 5,225 |
| 2,000 | 10,425 | 10,425 | 3,025 | 3,025 | 2,225 | 2,225 | 1,250 | 1,250 | 8,250 | 8,250 | 12,900 | 12,900 | 54,500 | 45,700 | 38,400 | 35,500 | 25,000 | 20,000 | 12,675 | 9,125 | 5,150 |
| 1,900 | 10,425 | 10,425 | 3,000 | 3,000 | 2,475 | 2,475 | 1,325 | 1,325 | 8,200 | 8,200 | 12,750 | 12,750 | 54,500 | 45,700 | 38,400 | 35,500 | 25,000 | 20,000 | 12,550 | 9,050 | 5,075 |
| 1,800 | 10,425 | 10,425 | 2,975 | 2,975 | 2,725 | 2,725 | 1,400 | 1,400 | 8,100 | 8,100 | 12,650 | 12,650 | 54,500 | 45,700 | 38,400 | 35,600 | 25,000 | 20,000 | 12,425 | 8,975 | 5,025 |
| 1,700 | 10,425 | 10,425 | 2,950 | 2,950 | 2,950 | 2,950 | 1,450 | 1,450 | 8,050 | 8,050 | 12,500 | 12,500 | 54,500 | 45,700 | 38,400 | 35,600 | 25,000 | 20,000 | 12,300 | 8,925 | 4,950 |
| 1,600 | 10,425 | 10,425 | 2,925 | 2,925 | 3,275 | 3,275 | 1,500 | 1,500 | 8,000 | 8,000 | 12,400 | 12,400 | 53,700 | 45,300 | 37,900 | 35,100 | 24,600 | 19,800 | 12,175 | 8,850 | 4,925 |
| 1,500 | 10,425 | 10,425 | 2,925 | 2,925 | 3,650 | 3,650 | 1,550 | 1,550 | 7,900 | 7,900 | 12,300 | 12,300 | 52,200 | 44,000 | 36,900 | 34,000 | 23,900 | 19,200 | 12,075 | 8,800 | 4,875 |
| 1,400 | 10,425 | 10,425 | 2,875 | 2,875 | 4,000 | 4,000 | 1,600 | 1,600 | 7,850 | 7,850 | 12,200 | 12,200 | 50,600 | 42,700 | 35,900 | 33,000 | 23,200 | 18,600 | 11,950 | 8,750 | 4,875 |
| 1,300 | 10,400 | 10,400 | 2,900 | 2,900 | 4,250 | 4,250 | 1,625 | 1,625 | 7,800 | 7,800 | 12,050 | 12,050 | 49,000 | 41,400 | 34,800 | 32,100 | 22,500 | 18,000 | 11,850 | 8,675 | 4,850 |
| 1,200 | 10,375 | 10,375 | 2,900 | 2,900 | 4,400 | 4,400 | 1,650 | 1,750 | 7,750 | 7,750 | 11,950 | 11,950 | 47,500 | 40,000 | 33,800 | 31,100 | 21,800 | 17,500 | 11,750 | 8,625 | 4,850 |
| 1,100 | 10,300 | 10,300 | 2,925 | 2,925 | 4,500 | 4,500 | 1,700 | 1,825 | 7,700 | 7,700 | 11,850 | 11,850 | 46,000 | 38,900 | 32,800 | 30,100 | 21,100 | 17,000 | 11,650 | 8,575 | 4,850 |
| 1,050 | 10,275 | 10,275 | 2,950 | 2,950 | 4,525 | 4,525 | 1,700 | 1,850 | 7,650 | 7,650 | 11,800 | 11,800 | 45,200 | 38,200 | 32,300 | 29,600 | 20,700 | 16,700 | 11,600 | 8,550 | 4,875 |
| 1,000 | 10,250 | 10,250 | 2,950 | 2,950 | 4,550 | 4,550 | 1,725 | 1,875 | 7,600 | 7,600 | 11,750 | 11,750 | 44,400 | 37,600 | 31,800 | 29,100 | 20,400 | 16,400 | 11,550 | 8,525 | 4,875 |
| 950 | 10,200 | 10,200 | 2,975 | 2,975 | 4,575 | 4,575 | 1,725 | 1,900 | 7,600 | 7,600 | 11,700 | 11,700 | 53,600 | 36,800 | 31,200 | 28,600 | 20,000 | 16,100 | 11,500 | 8,500 | 4,900 |
| 900 | 10,150 | 10,150 | 2,975 | 2,975 | 4,600 | 4,600 | 1,750 | 1,925 | 7,550 | 7,550 | 11,650 | 11,650 | 42,900 | 36,200 | 30,700 | 28,100 | 19,700 | 15,800 | 11,450 | 8,475 | 4,900 |
| 850 | 10,100 | 10,100 | 3,000 | 3,000 | 4,625 | 4,625 | 1,750 | 1,950 | 7,500 | 7,500 | 11,600 | 11,600 | 42,100 | 35,600 | 30,200 | 27,600 | 19,300 | 15,500 | 11,400 | 8,450 | 4,925 |
| 800 | 10,050 | 10,050 | 3,025 | 3,025 | 4,625 | 4,625 | 1,775 | 1,975 | 7,500 | 7,500 | 11,550 | 11,550 | 41,400 | 35,000 | 29,700 | 27,100 | 19,000 | 15,200 | 11,350 | 8,425 | 4,925 |
| 750 | 10,000 | 10,000 | 3,050 | 3,050 | 4,650 | 4,650 | 1,775 | 2,000 | 7,450 | 7,450 | 11,500 | 11,500 | 40,600 | 34,400 | 29,200 | 26,600 | 18,600 | 14,700 | 11,300 | 8,400 | 4,950 |
| 700 | 9,950 | 9,950 | 3,075 | 3,075 | 4,650 | 4,650 | 1,800 | 2,000 | 7,450 | 7,450 | 11,450 | 11,450 | 39,800 | 33,700 | 28,700 | 26,100 | 18,300 | 14,400 | 11,250 | 8,375 | 4,950 |
| 600 | 9,800 | 9,800 | 3,125 | 3,125 | 4,675 | 4,675 | 1,825 | 2,050 | 7,350 | 7,350 | 11,350 | 11,350 | 38,200 | 32,400 | 27,700 | 25,100 | 17,600 | 14,100 | 11,175 | 8,325 | 4,975 |
| 500 | 9,625 | 9,625 | 3,200 | 3,200 | 4,675 | 4,675 | 1,825 | 2,075 | 7,300 | 7,300 | 11,250 | 11,250 | 36,700 | 31,100 | 26,600 | 24,100 | 16,900 | 13,500 | 11,075 | 8,300 | 5,000 |
| 400 | 9,400 | 9,400 | 3,250 | 3,250 | 4,575 | 4,575 | 1,850 | 2,100 | 7,250 | 7,250 | 11,150 | 11,150 | 35,200 | 29,800 | 25,600 | 23,100 | 16,200 | 13,000 | 11,000 | 8,250 | 5,050 |
| 300 | 9,125 | 9,125 | 3,325 | 3,325 | 4,450 | 4,450 | 1,875 | 2,100 | 7,200 | 7,200 | 11,050 | 11,050 | 33,600 | 28,500 | 24,600 | 22,100 | 15,500 | 12,400 | 10,925 | 8,225 | 5,075 |
| 200 | 8,850 | 8,850 | 3,425 | 3,425 | 4,250 | 4,250 | 1,875 | 2,100 | 7,150 | 7,150 | 10,950 | 10,950 | 32,100 | 27,200 | 23,600 | 21,100 | 14,800 | 11,900 | 10,850 | 8,175 | 5,100 |
| 100 | 8,500 | 8,500 | 3,500 | 3,500 | 3,925 | 3,925 | 1,900 | 2,125 | 7,100 | 7,100 | 10,850 | 10,850 | 30,600 | 26,000 | 22,500 | 20,200 | 14,200 | 11,300 | 10,775 | 8,150 | 5,125 |
| 0 | 8,125 | 8,125 | 3,600 | 3,600 | 3,525 | 3,525 | 1,900 | 2,125 | 7,050 | 7,050 | 10,750 | 10,750 | 29,200 | 24,700 | 21,500 | 19,200 | 13,600 | 10,800 | 10,700 | 8,100 | 5,150 |

HOB_{fs} = 958m

Low HOB_{min} = 905m

High HOB_{min} = 2,052m

HOB₉₉ = HOB_{fs} + 3.5 PE_h m

HOB₉₈ = HOB_{fs} + 3.0 PE_h m

HOB₉₀ = HOB_{fs} + 1.9 PE_h m

Figure 11.6c.

CASUALTY and DAMAGE Tables
Strategic Bomber
All figures in meters

MIKE/5,000 KT

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------|----------------------|----------------------|----------------------|----------------------------------|----------------------------|-----------------------|-----------------|------------------------|------------------------|---------------------|--------------------------|---------|-----------|---------|-----------------|-----------|-------------|---------|
| HOB | Mod dam wheeled vehs | Mod dam tks and Arty | Severe dam sup depts | Severe dam radios and elec equip | Severe dam hwy and RR brgs | Severe dam float brgs | 2d-degree burns | | | 1 PSI over-pressure | Induced contamination | | | | | | | |
| | | | | | | | Exposed skin | 2-layer summer uniform | 4-layer winter uniform | | Intensity at GZ (Rad/hr) | | | | 2 rad/hr radius | | | |
| | | | | | | | | | | | Type I | Type II | Type III | Type IV | Type I | Type II | Type III | Type IV |
| 2,500 | 6,325 | 1,025 | 2,300 | 6,150 | 5,075 | 7,375 | 26,375 | 13,275 | 7,850 | 26,000 | | | | | | | | |
| 2,400 | 6,450 | 1,250 | 2,500 | 6,275 | 5,075 | 7,350 | 26,400 | 13,275 | 7,875 | 25,875 | | | 0 | | | | 0 | |
| 2,300 | 6,600 | 1,500 | 2,700 | 6,400 | 5,100 | 7,300 | 26,400 | 13,300 | 7,900 | 25,775 | | | 0-5 | | | | 0-50 | |
| 2,200 | 6,750 | 1,750 | 2,875 | 6,500 | 5,125 | 7,250 | 26,400 | 13,325 | 7,925 | 25,675 | | | 0-5 | | | | 0-700 | |
| 2,100 | 6,875 | 1,975 | 3,025 | 6,625 | 5,150 | 7,200 | 26,425 | 13,325 | 7,950 | 25,550 | | | 0-10 | | | | 0-950 | |
| 2,000 | 7,000 | 2,225 | 3,150 | 6,725 | 5,175 | 7,150 | 26,425 | 13,350 | 7,975 | 25,450 | | 0 | 0-15 | | | 0 | 0-1,150 | |
| 1,900 | 7,125 | 2,475 | 3,275 | 6,825 | 5,175 | 7,100 | 26,425 | 13,375 | 8,000 | 25,325 | | 0-5 | 0-25 | | | 0-50 | 0-1,300 | |
| 1,800 | 7,250 | 2,725 | 3,400 | 6,950 | 5,200 | 7,050 | 26,450 | 13,375 | 8,025 | 25,225 | | | 0-5 | 0-40 | | 0-600 | 0-1,450 | |
| 1,700 | 7,375 | 2,950 | 3,525 | 7,050 | 5,200 | 7,000 | 26,450 | 13,400 | 8,050 | 25,100 | | | 0-10 | 5-75 | | 0-850 | 400-1,550 | |
| 1,600 | 7,475 | 3,275 | 3,650 | 7,150 | 5,225 | 6,950 | 25,775 | 13,150 | 8,025 | 24,975 | 0 | 0-15 | 10-130 | | 0 | 0-1,050 | 700-1,700 | |
| 1,500 | 7,575 | 3,650 | 3,750 | 7,250 | 5,250 | 6,900 | 24,950 | 12,775 | 7,800 | 24,850 | 0-5 | 0-25 | 10-250 | | 0-400 | 0-1,200 | 900-1,750 | |
| 1,400 | 7,675 | 4,000 | 3,850 | 7,350 | 5,250 | 6,850 | 24,150 | 12,375 | 7,575 | 24,725 | 0-5 | 0-40 | 20-160 | | 0-700 | 0-1,300 | 1,050-1,850 | |
| 1,300 | 7,775 | 4,250 | 3,950 | 7,425 | 5,275 | 6,800 | 23,350 | 12,000 | 7,350 | 24,600 | 0-10 | 5-70 | 35-840 | | 0-850 | 400-1,400 | 1,200-1,900 | |
| 1,200 | 7,850 | 4,400 | 4,050 | 7,525 | 5,275 | 6,750 | 22,525 | 11,600 | 7,125 | 24,475 | 0-15 | 5-125 | 60-1,500 | | 0-1,000 | 650-1,500 | 1,300-2,000 | |
| 1,100 | 7,875 | 4,500 | 4,125 | 7,575 | 5,300 | 6,700 | 21,725 | 11,225 | 6,900 | 24,350 | 0-30 | 10-240 | 120-2,880 | | 0-1,100 | 800-1,600 | 1,400-2,050 | |
| 1,050 | 7,900 | 4,525 | 4,175 | 7,625 | 5,300 | 6,675 | 21,300 | 11,025 | 6,800 | 24,300 | 0-40 | 15-325 | 160-3,900 | | 0-1,150 | 850-1,600 | 1,400-2,050 | |
| 1,000 | 7,900 | 4,550 | 4,200 | 7,650 | 5,325 | 6,650 | 20,900 | 10,825 | 6,675 | 24,225 | 5-55 | 20-475 | 230-5,700 | 0 | 50-1,200 | 950-1,650 | 1,450-2,100 | 0 |
| 950 | 7,900 | 4,575 | 4,250 | 7,675 | 5,325 | 6,625 | 20,500 | 10,625 | 6,575 | 24,150 | FALLOUT GOVERNS | | | | | | | |
| 900 | 7,875 | 4,600 | 4,275 | 7,700 | 5,350 | 6,575 | 20,100 | 10,450 | 6,450 | 24,100 | | | | | | | | |
| 850 | 7,875 | 4,625 | 4,325 | 7,725 | 5,350 | 6,550 | 19,700 | 10,250 | 6,350 | 24,025 | | | | | | | | |
| 800 | 7,850 | 4,625 | 4,350 | 7,725 | 5,350 | 6,525 | 19,275 | 10,050 | 6,225 | 23,950 | | | | | | | | |
| 750 | 7,800 | 4,650 | 4,375 | 7,700 | 5,350 | 6,500 | 18,875 | 9,850 | 6,125 | 23,900 | | | | | | | | |
| 700 | 7,775 | 4,650 | 4,400 | 7,700 | 5,375 | 6,500 | 18,475 | 9,675 | 6,000 | 23,825 | | | | | | | | |
| 600 | 7,700 | 4,675 | 4,400 | 7,625 | 5,375 | 6,450 | 17,675 | 9,275 | 5,775 | 23,675 | | | | | | | | |
| 500 | 7,600 | 4,675 | 4,325 | 7,500 | 5,350 | 6,400 | 16,850 | 8,900 | 5,500 | 23,550 | | | | | | | | |
| 400 | 7,425 | 4,575 | 4,175 | 7,300 | 5,250 | 6,325 | 16,050 | 8,500 | 5,325 | 23,400 | | | | | | | | |
| 300 | 7,100 | 4,450 | 3,950 | 7,050 | 5,125 | 6,250 | 15,225 | 8,125 | 5,100 | 23,250 | | | | | | | | |
| 200 | 6,575 | 4,250 | 3,675 | 6,775 | 4,975 | 6,150 | 14,425 | 7,725 | 4,875 | 23,100 | | | | | | | | |
| 100 | 5,925 | 3,925 | 3,300 | 6,400 | 4,700 | 6,075 | 13,600 | 7,350 | 4,650 | 22,975 | | | | | | | | |
| 0 | 5,300 | 3,525 | 2,875 | 6,000 | 3,975 | 5,975 | 12,800 | 6,950 | 4,125 | 22,825 | | | | | | | | |

Figure 11.6c continued.

STRAT
BMR 1

**CONTINGENT EFFECTS Tables
Strategic Bomber**

INDUCED RADIATION IN SOILS (See Note 1.)

Fallout activity is not significant.
Impact burst not tabulated, fallout governs.

| Yield
KT | HOB | Estimated radii in meters of 2 rad/hr contour
of induced radiation, 1 hour after burst | | | | Estimated induced radiation intensity, 1
hour after burst, at GZ. In rad/hr. | | | |
|-------------|------|---|------------------------------------|---|---|---|--------------|---------------|--------------|
| | | Soil type I
(Liberia,
Africa) | Soil type II
(Nevada
desert) | Soil type III
(lava clay,
Hawaii) | Soil type IV
(beach sand,
Pensacola, Fla) | Soil type I | Soil type II | Soil type III | Soil type IV |
| KILO/1,000 | Low | 0-1,000 | 700-1,450 | 1,250-1,900 | 0 | 0-30 | 15-260 | 125-3,120 | 0 |
| | High | 0-50 | 0-1,050 | 750-1,600 | 0 | 0-5 | 0-15 | 10-170 | 0 |
| LIMA/2,000 | Low | 0-1,000 | 700-1,450 | 1,350-1,950 | 0 | 0-25 | 10-190 | 95-2,280 | 0 |
| | High | 0 | 0-700 | 400-1,450 | 0 | 0 | 0-5 | 5-55 | 0 |
| MIKE/5,000 | Low | 0-1,000 | 650-1,500 | 1,300-2,000 | 0 | 0-15 | 5-125 | 60-1,500 | 0 |
| | High | 0 | 0 | 0-950 | 0 | 0 | 0 | 0-10 | 0 |

NOTE: For description of chemical composition and effects of variations in chemical composition in soil types, see FM 101-31-1, app III, annex F.

Figure 11.7a.

TREE BLOWDOWN (See Note.)

All distances in meters

| Yield
KT | OBSTACLES TO MOVEMENT | | | | | | | CASUALTIES TO
EXPOSED PERSONNEL | | |
|-------------|--------------------------------------|------------|-------------|------------|-----------------------------|----------------------|-----------------------|------------------------------------|----------------------|-----------------------|
| | Foot and wheeled vehicle
movement | | | | Tracked vehicle
movement | | | Type
I | Types
II, IV(a,d) | Types
III, IV(a,f) |
| | Type
I | Type
II | Type
III | Type
IV | Type
I | Types
II, IV(a,d) | Types
III, IV(a,f) | | | |
| KILO/1,000 | 5,000 | 6,200 | 7,700 | 12,000 | 5,000 | 6,200 | 7,700 | 4,050 | 4,600 | 5,200 |
| LIMA/2,000 | 5,800 | 7,400 | 9,600 | 14,500 | 5,800 | 7,400 | 9,600 | 4,600 | 5,200 | 6,500 |
| MIKE/5,000 | 8,600 | 12,000 | 14,500 | 22,000 | 8,600 | 12,000 | 14,500 | 7,000 | 8,000 | 9,600 |

NOTE: These radii apply to all HOB. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 11.7b.

LIGHT AIRCRAFT IN FLIGHT (See Note 1.)

| Yield
KT | AIRCRAFT SAFETY RADII—meters
(See note 2.) | | |
|-------------|---|-----------------------|---------------------------|
| | Light fixed
wing | Recon and
obsn hel | Transport
and util hel |
| KILO/1,000 | 43,000 | 42,000 | 40,000 |
| LIMA/2,000 | 51,000 | 50,000 | 47,000 |
| MIKE/5,000 | 62,000 | 61,000 | 59,000 |

- NOTES: 1. These radii apply to all HOB. See FM 101-31-1, app III, annex F.
2. A buffer distance has been added to these radii of safety.

Figure 11.7c.

CONTINGENT EFFECTS Tables (continued)
Strategic Bomber

FIRE AREAS (See Note.)

| Yield
KT | HOB | Expected radii for ignition of wildland fuels during fire season—meters | | | | | | | |
|-------------|--------|---|----------|-----------|---------------------|---|----------|-----------|----------|
| | | Dry climate (25 percent relative humidity) | | | | Damp climate (75 percent relative humidity) | | | |
| | | Class I | Class II | Class III | Class IV | Class I | Class II | Class III | Class IV |
| KILO/1,000 | Air | 15,600 | 14,200 | 12,900 | 10,700 ¹ | 14,200 | 14,200 | 11,900 | 8,900 |
| | Impact | 7,800 | 7,200 | 6,600 | 5,600 | 7,200 | 7,200 | 6,200 | 4,800 |
| LIMA/2,000 | Air | 20,600 | 18,800 | 17,000 | 14,000 | 18,800 | 18,800 | 15,600 | 11,800 |
| | Impact | 10,100 | 9,400 | 8,600 | 7,100 | 9,400 | 9,400 | 7,900 | 6,100 |
| MIKE/5,000 | Air | 29,300 | 26,700 | 23,300 | 20,200 | 26,700 | 26,700 | 22,500 | 16,800 |
| | Impact | 14,000 | 12,900 | 11,800 | 9,900 | 12,900 | 12,900 | 10,900 | 8,500 |

NOTE: These radii apply to all HOB. For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 11.7d.

CRATER DIMENSIONS (See Note.)

| Yield
KT | Approx crater dimensions for various soil types—meters | | | | | | | |
|-------------|--|-------|---|-------|--|-------|---|-------|
| | Hard rock
(Granite and
sandstone) | | Soft rock
(dry soil or
soft rock) | | Saturated soil
(water slowly
fills crater) | | Saturated soil
(water rapidly
fills crater) | |
| | Radius | Depth | Radius | Depth | Radius | Depth | Radius | Depth |
| KILO/1,000 | 156 | 29 | 196 | 36 | 293 | 54 | 391 | 26 |
| LIMA/2,000 | 197 | 35 | 246 | 43 | 369 | 65 | 492 | 30 |
| MIKE/2,000 | 267 | 43 | 334 | 54 | 501 | 81 | 668 | 38 |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 11.7e.

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ATOMIC DEMOLITION MUNITIONS

12.1. GENERAL

a. Orientation:

(1) This chapter contains necessary effects data for the normal tactical use of atomic demolition munitions (ADM) on the surface or in shallow underground emplacements. When time is available for deliberate planning of major demolitions with the larger yield munitions, the engineer element determines the desirability of special deep underground emplacements (e.g., in tunnels) and/or the effects that can be expected against target elements not included in this chapter.

(2) Materiel damage is the primary objective for ADM's. For this reason, the categories of materiel targets have been increased substantially in this chapter compared to the categories for other weapons. Variations in structural qualities and standards for targets such as buildings, underground structures, bridges, and equipment preclude a precise prediction of effects radii. Although in this chapter, the ADM effects radii are taken to be valid within ± 25 percent, variations in structural qualities may increase this uncertainty to ± 50 percent.

b. Employment capabilities.

(1) Yield. ADM's are available with yields of Alfa/0.5 KT, Bravo/1 KT, Delta/5 KT, Echo/10 KT, Golf/50 KT, and Hotel/100 KT.

(2) Fuzing. ADM's can be detonated on the surface, in underground or in underwater emplacements using a time fuze. The time can be varied in 10-minute increments from 10 minutes to 1 hour and in 30-minute increments to 12 hours.

(3) Preinitiation. See figure 13.7 for the necessary considerations when a multiple weapon attack is desired.

c. Employment capabilities.

(1) Tactical system accuracy. There is assumed to be no delivery error for ADM's, permitting a simpler tabulation of weapon effects.

(2) Response time. As a basis for general tactical planning, two hours should be considered the time for a reasonably well-trained crew, operating in daylight under favorable conditions, to prepare and emplace a munition on the surface or a previously prepared emplacement. Night operations, enemy interference, or severe weather conditions may extend this time. This time does not include travel time. For detailed tactical planning, the time required for emplacement should be obtained from the engineer unit concerned.

(3) Special considerations. The target analyst needs no special information for target analysis. The fire mission to the unit includes the GZ and any special emplacement instructions.

i. Fallout. Fallout is an important consideration in the employment of any ADM. With the larger munitions, it may be a major consideration. While radioactive contamination of the crater area increases the effectiveness of ADM's no data are included for induced radiation since it will be greatly overshadowed by fallout.

ADM 1

ATOMIC DEMOLITION MUNITIONS

SEVERE DAMAGE RADII—METERS

| Material classification | Yield-KT | | | | | |
|---|----------|---------|---------|---------|---------|-----------|
| | ALFA/.5 | BRAVO/1 | DELTA/5 | ECHO/10 | GOLF/50 | HOTEL/100 |
| Tunnels and mines
Heavy masonry or concrete
dams and bridges | 50 | 50 | 125 | 175 | 225 | 300 |
| Tanks and artillery
Locomotives
Supply depots
Engineer earthmoving
equip
Field fortifications | 75 | 100 | 175 | 250 | 450 | 600 |
| Engineer truck-mounted
equip
Earth-covered surface shelters
Blast-resistant reinforced
concrete bldgs | 100 | 100 | 200 | 250 | 400 | 525 |
| Military vehicles
Railroad cars
Communications equip
Truss and floating bridges
Monumental-type multistory
wall-bearing bldgs
Heavy steel frame industrial
bldgs
Multistory, reinforced concrete
frame bldgs | 150 | 200 | 375 | 500 | 950 | 1,250 |
| Oil storage tanks
Multistory, reinforced concrete
bldgs (small window area)
Multistory, steel frame office
bldgs
Light steel frame industrial
bldgs | 250 | 300 | 475 | 650 | 1,125 | 1,425 |
| Multistory, wall-bearing bldgs
(apt house type)
Parked combat aircraft | 375 | 450 | 800 | 1,000 | 1,700 | 2,125 |
| Wood frame bldgs | 375 | 650 | 1,050 | 1,325 | 2,275 | 2,875 |

Figure 12.1.

MODERATE DAMAGE RADII—METERS

| Material classification | Yield-KT | | | | | |
|---|----------|---------|---------|---------|---------|-----------|
| | ALFA/.5 | BRAVO/1 | DELTA/5 | ECHO/10 | GOLF/50 | HOTEL/100 |
| Tanks and artillery
Field fortifications | 100 | 125 | 225 | 300 | 550 | 750 |
| Earthmoving and truck-mounted
engr equip
Locomotives
Military vehicles
Earth covered surface shelters | 125 | 175 | 325 | 450 | 850 | 1,100 |
| Railroad cars
Blast resistant reinforced con-
crete bldgs
Truss and floating bridges | 175 | 200 | 375 | 500 | 1,000 | 1,300 |
| Heavy steel frame industrial
bldgs
Multistory, reinforced concrete
frame bldgs
Monumental-type multistory
wall-bearing bldgs
Multistory, steel frame office
bldgs
Light steel frame industrial
bldgs | 250 | 350 | 625 | 800 | 1,475 | 1,750 |
| Multistory, reinforced concrete
bldgs (small window area)
Oil storage tanks
Parked combat aircraft | 475 | 600 | 1,000 | 1,275 | 2,175 | 2,750 |
| Multistory, wall-bearing bldgs
(apt house-type) | 525 | 650 | 1,125 | 1,450 | 2,325 | 3,100 |
| Wood frame bldgs | 850 | 1,000 | 1,675 | 2,125 | 3,700 | 4,650 |

Figure 12.2.

CRATER DIMENSIONS (See note.)

| Yield
KT | Approx crater dimensions for various soil types—meters | | | | | | | |
|-------------|--|-------|---|-------|--|-------|---|-------|
| | Soft rock
(dry soil or
soft rock) | | Hard rock
(granite and
sandstone) | | Saturated soil
(water slowly
fills crater) | | Saturated soil
(water rapidly
fills crater) | |
| | Radius | Depth | Radius | Depth | Radius | Depth | Radius | Depth |
| ALFA/.5 | 16 | 6 | 13 | 5 | 24 | 8 | 31 | 4 |
| BRAVO/1 | 20 | 7 | 16 | 6 | 30 | 10 | 39 | 5 |
| DELTA/5 | 34 | 10 | 27 | 8 | 50 | 15 | 67 | 7 |
| ECHO/10 | 42 | 12 | 34 | 10 | 63 | 18 | 84 | 8 |
| GOLF/50 | 72 | 17 | 58 | 14 | 108 | 26 | 144 | 12 |
| HOTEL/100 | 91 | 21 | 73 | 17 | 136 | 31 | 182 | 15 |

NOTE: Based on contact surface burst, for more detailed analysis, see engineer element.

Figure 12.3.

CRATER DIMENSIONS SUBSURFACE BURSTS
(see note)

| Yield
KT | Approximate crater dimensions
for dry soil or soft rock | | |
|-------------|--|------------------|-----------------|
| | Depth of
Burial | Crater
Radius | Crater
Depth |
| Alfa/.5 | 47 | 46 | 16 |
| Bravo/1 | 58 | 57 | 19 |
| Delta/5 | 93 | 91 | 31 |
| Echo/10 | 114 | 112 | 33 |
| Golf/50 | 183 | 180 | 61 |
| Hotel/100 | 225 | 221 | 75 |

NOTE: At the depths of burial indicated, fallout is reduced to one hundredth of that from a contact surface burst.

Figure 12.4

CASUALTY RADII—METERS

| Yield
KT | Exposed Personnel | | Protected Personnel | |
|-------------|-------------------|---------|---------------------|---------|
| | Prompt | Delayed | Prompt | Delayed |
| ALFA/.5 | 425 | 675 | 300 | 500 |
| BRAVO/1 | 575 | 775 | 400 | 600 |
| DELTA/5 | 800 | 1,050 | 625 | 825 |
| ECHO/10 | 900 | 1,175 | 700 | 925 |
| GOLF/50 | 1,300 | 1,475 | 925 | 1,175 |
| HOTEL/100 | 1,725 | 1,725 | 1,075 | 1,300 |

Figure 12.5

FIRE AREAS (See note.)

| Yield
KT | Expected radii for ignition of wildland fuels during fire season—meters | | | | | | | |
|-------------|---|----------|-----------|----------|---|----------|-----------|----------|
| | Dry climate (25 percent relative humidity) | | | | Damp climate (75 percent relative humidity) | | | |
| | Class I | Class II | Class III | Class IV | Class I | Class II | Class III | Class IV |
| ALFA/.5 | 500 | 500 | 400 | 400 | 500 | 500 | 400 | 400 |
| BRAVO/1 | 700 | 600 | 500 | 500 | 600 | 600 | 500 | 400 |
| DELTA/5 | 1,200 | 1,100 | 1,000 | 800 | 1,100 | 1,100 | 900 | 700 |
| ECHO/10 | 1,500 | 1,400 | 1,300 | 1,100 | 1,400 | 1,400 | 1,200 | 900 |
| GOLF/50 | 2,800 | 2,600 | 2,300 | 2,000 | 2,600 | 2,600 | 2,200 | 1,600 |
| HOTEL/100 | 3,500 | 3,200 | 3,000 | 2,500 | 3,200 | 3,200 | 2,800 | 2,100 |

NOTE: For description of fuel classes, see FM 101-31-1, app III, annex F.

Figure 12.6

ATOMIC DEMOLITION MUNITIONS (continued)

TREE BLOWDOWN (See note.)

All distances in meters

| Yield
KT | OBSTACLES TO MOVEMENT | | | | | | | CASUALTIES TO
EXPOSED PERSONNEL | | |
|-------------|--------------------------------------|------------|-------------|------------|-----------------------------|---------------------|----------------------|------------------------------------|---------------------|----------------------|
| | Foot and wheeled
vehicle movement | | | | Tracked vehicle
movement | | | | | |
| | Type
I | Type
II | Type
III | Type
IV | Type
I | Types
II, IVa(d) | Types
III, IVa(f) | Type
I | Types
II, IVa(d) | Types
III, IVa(f) |
| ALFA/.5 | 150 | 200 | 200 | 350 | 150 | 200 | 200 | 150 | 200 | 200 |
| BRAVO/1 | 200 | 300 | 300 | 500 | 200 | 300 | 300 | 200 | 300 | 300 |
| DELTA/5 | 400 | 600 | 600 | 1,000 | 400 | 600 | 600 | 400 | 600 | 600 |
| ECHO/10 | 600 | 800 | 900 | 1,350 | 600 | 800 | 900 | 600 | 800 | 900 |
| GOLF/50 | 1,200 | 1,550 | 1,700 | 2,650 | 1,200 | 1,550 | 1,700 | 1,200 | 1,550 | 1,700 |
| HOTEL/100 | 1,700 | 2,000 | 2,250 | 3,400 | 1,700 | 2,000 | 2,250 | 1,700 | 2,000 | 2,250 |

NOTE: These radii apply to contact surface burst. For general description of forest stand types and criteria, see FM 101-31-1, app III, annex F.

Figure 12.7

LIGHT AIRCRAFT IN FLIGHT (See note 1.)

| Yield
KT | AIRCRAFT SAFETY RADII—meters (See note 2) | | |
|-------------|---|--------------------|------------------------|
| | Light fixed wing | Recon and obsn hel | Transport and util hel |
| ALFA/.5 | 4,000 | 4,000 | 4,000 |
| BRAVO/1 | 5,000 | 5,000 | 5,000 |
| DELTA/5 | 9,000 | 9,000 | 7,000 |
| ECHO/10 | 10,000 | 10,000 | 9,000 |
| GOLF/50 | 17,000 | 16,000 | 15,000 |
| HOTEL/100 | 22,000 | 21,000 | 18,000 |

NOTES: 1. These radii apply to contact surface burst. See FM 101-31-1, app III, annex F.

2. A buffer distance has been added to these radii of safety.

Figure 12.8

TROOP SAFETY DISTANCES

In all cases fallout (1 cloud diameter added to fallout plot) will govern in determination of minimum safe distances. Table below shows distances for INITIAL effects only

| Yield
KT | Minimum Distance Required for Troop
Vulnerability and Degree of Risk Shown | | | | | | | | |
|-------------|---|-------------|--------------|--------------------------------|-------------|--------------|----------------------------------|-------------|--------------|
| | Unwarned
Exposed
Personnel | | | Warned
Exposed
Personnel | | | Warned
Protected
Personnel | | |
| | NEG
Risk | MOD
Risk | EMER
Risk | NEG
Risk | MOD
Risk | EMER
Risk | NEG
Risk | MOD
Risk | EMER
Risk |
| ALFA/.5 | 1,500 | 1,300 | 1,000 | 1,500 | 1,300 | 1,000 | 1,200 | 1,000 | 800 |
| BRAVO/1 | 1,700 | 1,400 | 1,200 | 1,700 | 1,400 | 1,200 | 1,400 | 1,200 | 1,000 |
| DELTA/5 | 2,100 | 1,700 | 1,400 | 2,100 | 1,700 | 1,400 | 1,700 | 1,400 | 1,200 |
| ECHO/10 | 2,600 | 1,900 | 1,600 | 2,200 | 1,900 | 1,600 | 1,800 | 1,500 | 1,300 |
| GOLF/50 | 4,900 | 3,800 | 3,300 | 3,200 | 2,300 | 1,900 | 2,400 | 1,800 | 1,600 |
| HOTEL/100 | 6,400 | 5,000 | 4,400 | 4,200 | 2,700 | 2,200 | 3,000 | 2,300 | 1,700 |

Figure 12.9

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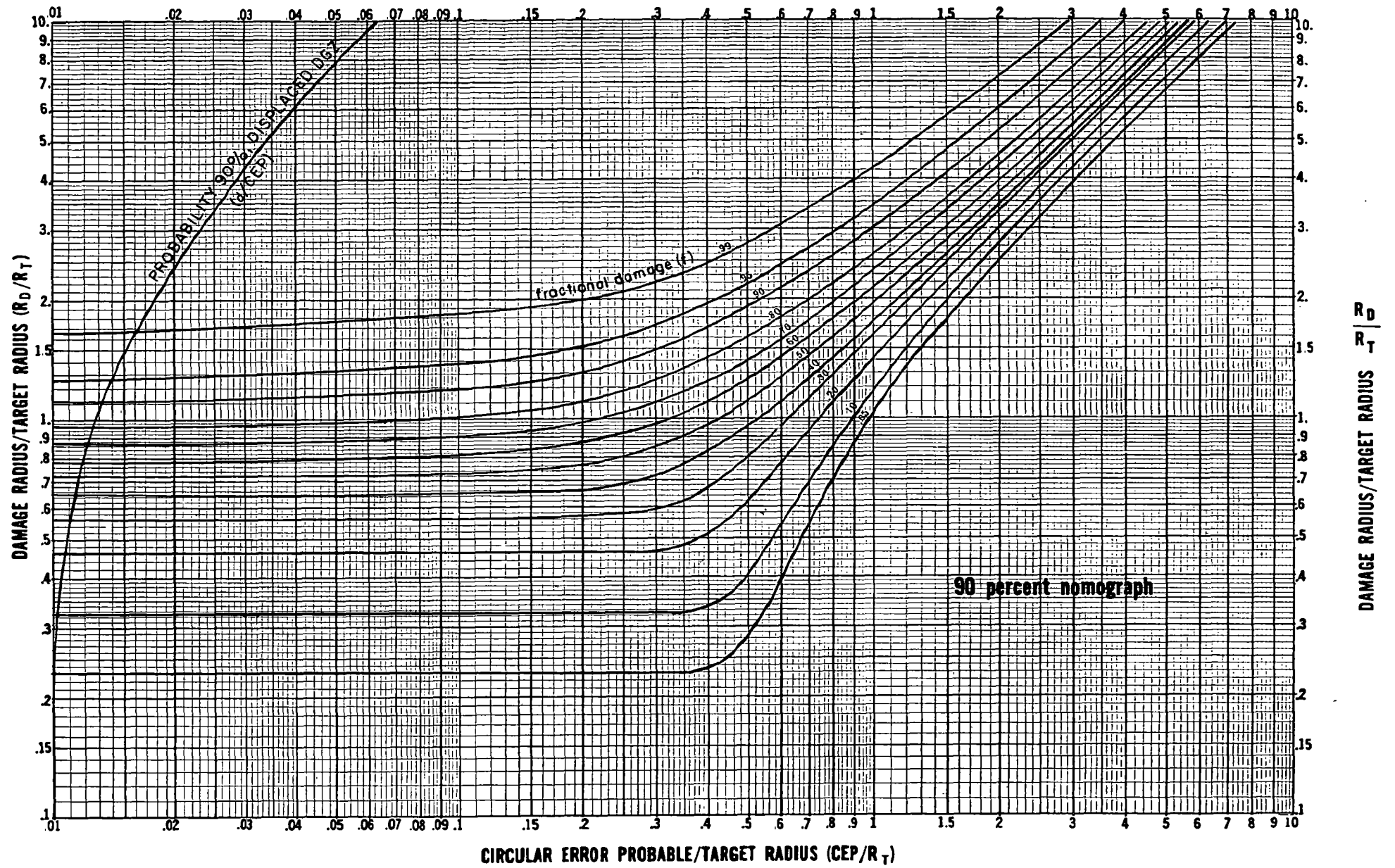
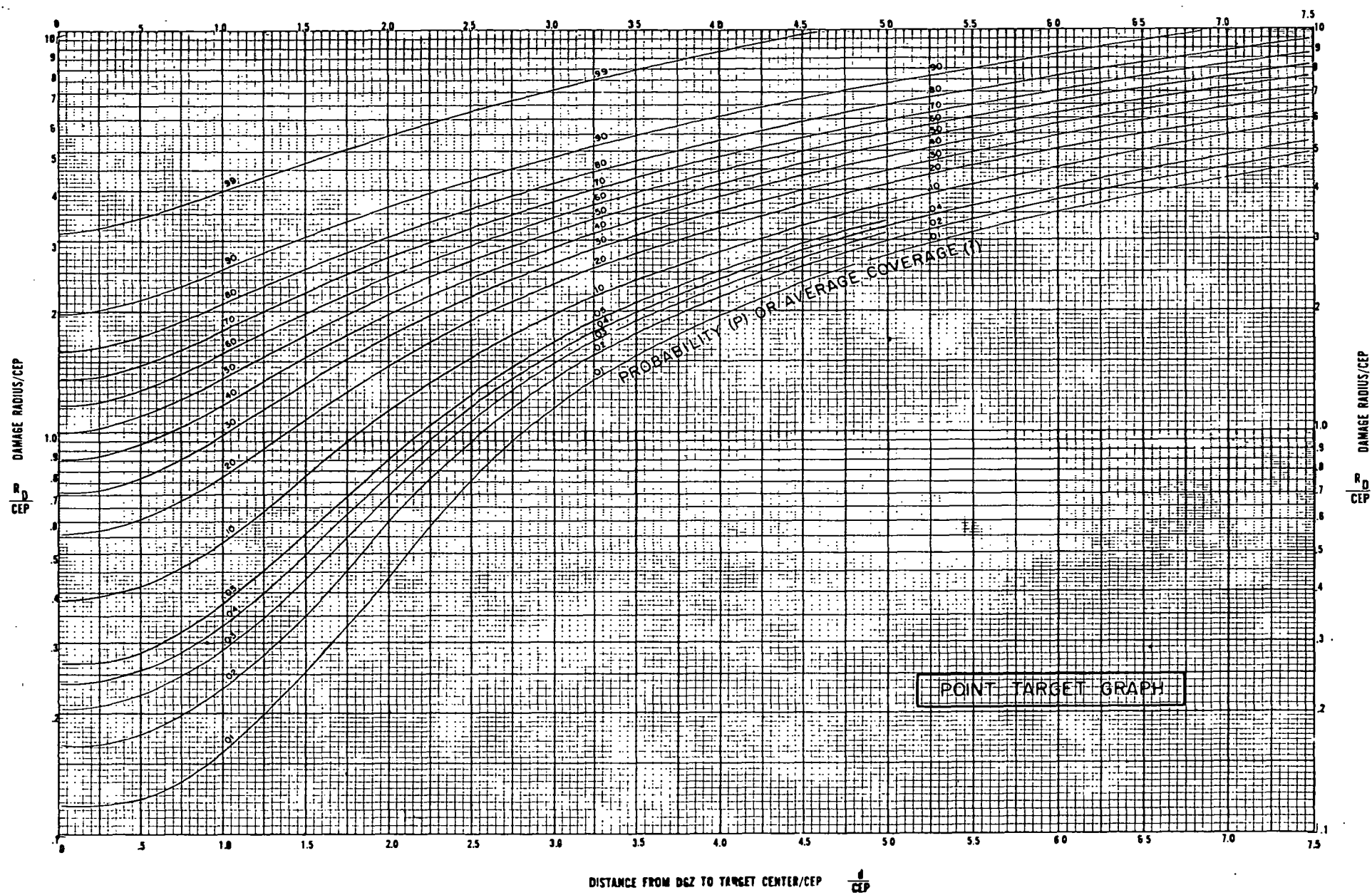


Figure 13.2. 90 percent nomograph.



DISTANCE FROM D6Z TO TARGET CENTER/CEP $\frac{D}{CEP}$

Figure 13.3. Point target graph.

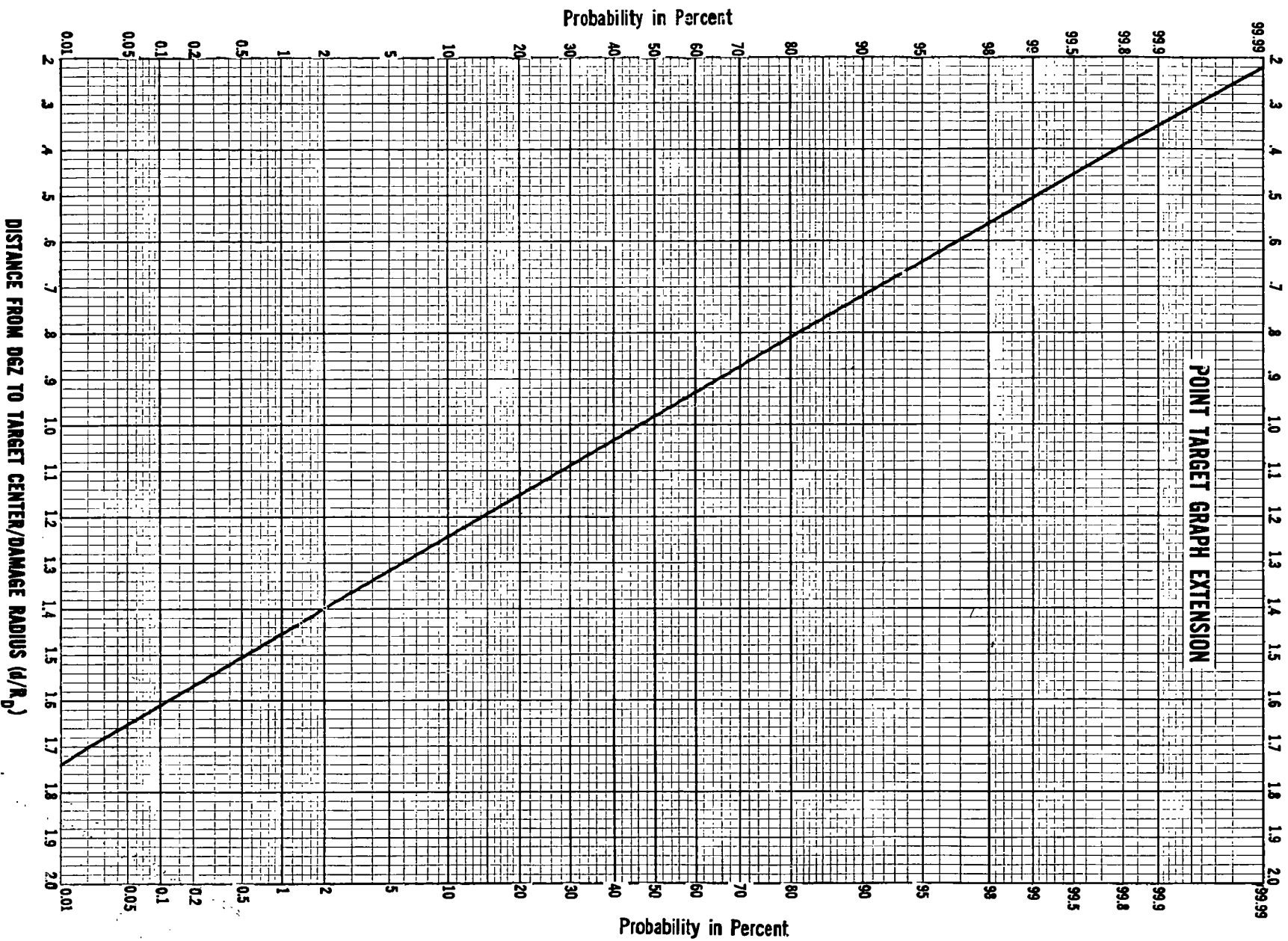


Figure 13.4. Point target graph extension.

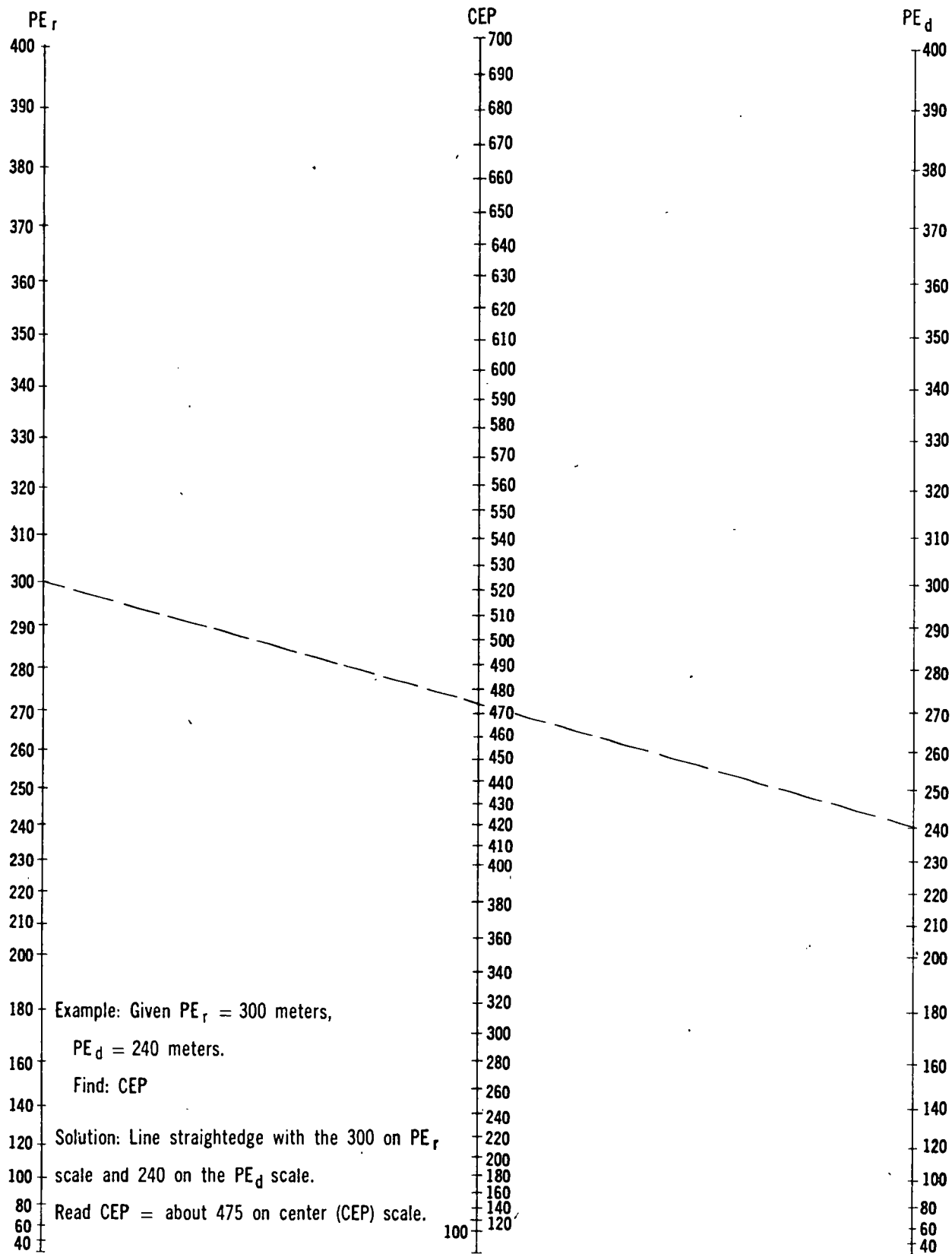


Figure 13.5. Conversion of PE to CEP.

TRANSMISSION FACTORS FOR NUCLEAR RADIATION

1. The total dose of radiation received from a particular burst depends upon the amount of protection afforded the target by the surrounding material. The transmission factor (TF) is a measure of the amount of radiation passing through the materials surrounding the target in relation to the total radiation received by the protective material. Stated in equation form—

$$a. \text{ Transmission factor} = \frac{\text{inside dose of radiation}}{\text{outside dose of radiation}}$$

To determine the total dose of radiation to be received by a particular target, the equation is solved for the inside dose by multiplying the transmission factor times the outside dose.

$$b. \text{ Inside dose} = \text{transmission factor} \times \text{outside dose.}$$

This general equation applies to either initial radiation or residual radiation. The value of the transmission factor varies with the material and type of radiation. Figure 13.6 shows the transmission factors for various types of protection for both initial radiation and residual radiation.

2. The following illustrative example explains the application of the transmission factors for initial nuclear radiation:

a. *Problem.* A nuclear weapon is planned for employment on a target consisting of personnel in foxholes. At a distance of 1,300 meters from desired ground zero, the outside dose of radiation is predicted to be 4,000 rad of which 2,500 rad can be attributed to initial gamma radiation and the remaining 1,500 rad to initial neutron radiation. Determine the total dose of radiation received by personnel in foxholes 1,300 meters from the desired ground zero.

b. *Solution.*

(1) Obtain the TF's from figure 13.6 for personnel in foxholes, initial radiation.

(a) For gamma, transmission factor = 0.2.

(b) For neutron, transmission factor = 0.3.

(2) The total dose of radiation is obtained by applying equation 1b for each type of radiation in turn.

(a) Gamma radiation dose = $0.2 \times 2,500 \text{ rad} = 500 \text{ rad}$.

(b) Neutron radiation dose = $0.3 \times 1,500 \text{ rad} = 450 \text{ rad}$.

(c) Total radiation dose = $500 \text{ rad} + 450 \text{ rad} = 950 \text{ rad}$.

3. The following illustrative example explains the application of the TF's for residual radiation.

a. *Problem.* In crossing an area contaminated by fallout radiation, it is estimated that an individual unprotected in the open would receive 300 rad total dose. The average outside dose rate is 100 rad/hr at H + 1. Assuming that armored carriers are available and that the time in the area remains unchanged, what total dose of radiation is received inside of the carrier and what average dose rate exists inside the carrier?

b. *Solution.*

(1) Obtain the transmission factor from figure 13.6 for armored carriers, residual radiation.

TF = 0.6.

(2) The total dose of radiation is obtained by applying equation 1b. Total dose = $0.6 \times 300 \text{ rad} = 180 \text{ rad}$.

(3) The dose rate of radiation inside of the armored carrier can be obtained in the same manner since equation 1b applies equally to dose rates. Dose rate = $0.6 \times 100 \text{ rad/hr} = 60 \text{ rad/hr}$.

| Protection | Initial | | Residual |
|------------------------------------|----------|-------|----------|
| | Neutrons | Gamma | |
| Armored carrier | 0.7 | 0.7 | 0.6 |
| Built-up city area (in open) | 1.0 | 0.5 | 0.7* |
| Foxholes | 0.3 | 0.2 | 0.1 |
| <u>Frame house</u> | | | |
| First floor | 1.0 | 0.9 | 0.5 |
| Basement | 0.5 | 0.3 | 0.1 |
| <u>Multistory buildings</u> | | | |
| Top floor | 1.0 | 0.9 | 0.1 |
| Intermediate floors | 0.9 | 0.9 | .02 |
| Lower floor | 0.9 | 0.5 | 0.1 |
| Basement | 0.5 | 0.3 | .01 |
| Shelter, closed (3 ft earth cover) | 0.05 | 0.02 | 0.005 |
| <u>Tanks</u> | | | |
| Light | 0.3 | 0.2 | 0.2 |
| Medium | 0.3 | 0.1 | 0.1 |
| <u>Trucks</u> | | | |
| 1/4-ton | 1.0 | 1.0 | 0.8 |
| 3/4-ton | 1.0 | 1.0 | 0.7 |
| 2½-ton | 1.0 | 1.0 | 0.6 |
| 4-7 ton | 1.0 | 1.0 | 0.5 |
| Woods | 1.0 | 1.0 | 0.8* |

Figure 13.6. Transmission factors for nuclear radiation.

*Note: These transmission factors do not apply to ground survey doses.

| Minimum separation
between bursts
in meters | Minimum delay
in minutes |
|---|-----------------------------|
| Less than 1,000 | 3 |
| 1,000 | 2 |
| 2,500 | 1.5 |
| 5,000 | 1 |
| 7,500 | 0.5 |
| 10,000 | 0 |

Figure 13.7a. Minimum waiting time between bursts.

NOTE: Use only for weapons found in FM 101-31-3.
DO NOT USE with FM 101-31-2.

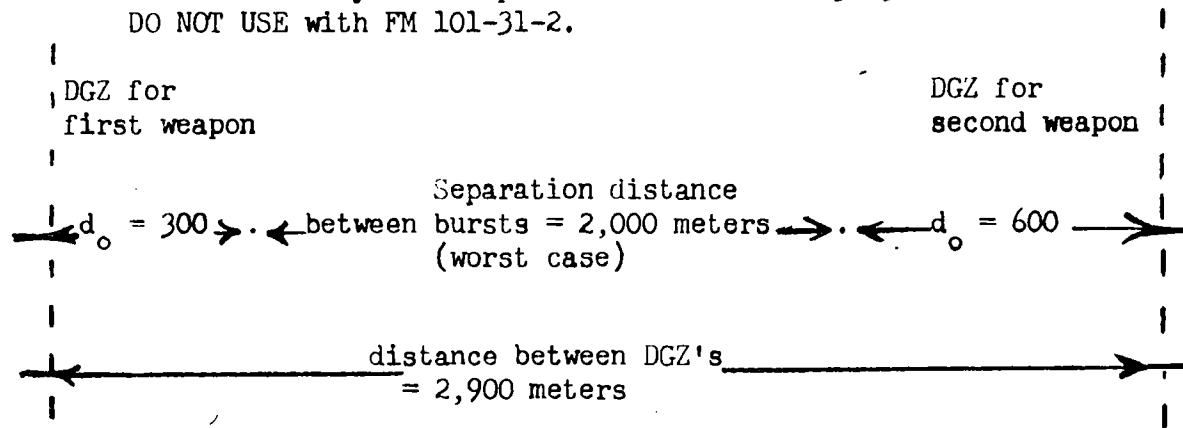


Figure 13.7b. Separation of bursts.

The following problem demonstrates the use of figure 13.7a:

- a. Given: (1) Two weapons are to be employed. Their DGZ's are 2,900 meters apart.
- (2) d_o for the first weapon is 300 meters.
- (3) d_o for the second weapon is 600 meters.
- b. Find: Minimum time between bursts.
- c. Answer: 2 minutes.
- d. Solution: (1) Reference to figure 13.7a indicates that for bursts between 2,500 meters and 5,000 meters apart, a 1.5 minute time delay is required. However, the first weapon may burst right of its DGZ, or the second weapon may burst left of its DGZ. In order to reduce the probability of preinitiation, the time-space separation requirement must consider this circumstance.
- (2) As shown in figure 13.7b, the first round may land 300 meters (d_o) right of DGZ. The second round may land 600 meters (d_o) left of its DGZ. From these facts, it can be seen that the weapons could land as close together as 2,000 meters ($2,900 - (300 + 600)$).
- (3) Entering figure 13.7a, it can be seen that for a separation distance of less than 2,500 meters, a delay of 2 minutes is required.

3000021149

| Yield
(KT) | Personnel | | | Materiel (See note) | |
|---------------|--------------------------|---------------------------|-------------------------------------|---|---|
| | Exposed | | Protected
(tanks or
foxholes) | Military wheeled
vehicles
(moderate damage) | Tanks and
artillery
(moderate damage) |
| | No thermal
protection | With thermal
shielding | | | |
| ALFA/.5 | 950 | 950 | 750 | 200 | 125 |
| BRAVO/1 | 1,200 | 1,200 | 950 | 250 | 150 |
| CHARLIE/2 | 1,300 | 1,300 | 950 | 325 | 200 |
| DELTA/5 | 2,000 | 1,375 | 1,100 | 500 | 300 |
| ECHO/10 | 2,950 | 1,525 | 1,200 | 650 | 400 |
| FOXTROT/20 | 3,500 | 1,825 | 1,325 | 875 | 525 |
| GOLF/50 | 5,800 | 3,375 | 1,500 | 1,250 | 750 |
| HOTEL/100 | 7,700 | 3,625 | 1,650 | 1,650 | 975 |
| INDIA/200 | 10,475 | 5,025 | 2,350 | 2,175 | 1,300 |
| JULIETT/500 | 15,600 | 7,400 | 3,175 | 3,150 | 1,850 |
| KILO/1,000 | 20,900 | 10,000 | 4,025 | 4,150 | 2,450 |
| LIMA/2,000 | 27,400 | 13,500 | 5,075 | 5,475 | 3,250 |
| MIKE/5,000 | 38,400 | 20,000 | 6,900 | 7,900 | 4,675 |

NOTE: For other materiel targets with response similar to wheeled vehicles or tanks and artillery, see figure IV.3.

Figure 13.8, Vulnerability radii (R_v) for analysis of own vulnerability.

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0/0 | | | | | | | | | |
| 0/1 | 1/1 | | | | | | | | |
| 0/2 | 1/2 | 2/2 | | | | | | | |
| 0/3 | 1/3 | 2/3 | 3/3 | | | | | | |
| 0/4 | 1/4 | 2/4 | 3/4 | 4/4 | | | | | |
| 0/5 | 1/5 | 2/5 | 3/5 | 4/5 | 5/5 | | | | |
| 0/6 | 1/6 | 2/6 | 3/6 | 4/6 | 5/6 | 6/6 | | | |
| 0/7 | 1/7 | 2/7 | 3/7 | 4/7 | 5/7 | 6/7 | 7/7 | | |
| 0/8 | 1/8 | 2/8 | 3/8 | 4/8 | 5/8 | 6/8 | 7/8 | 8/8 | |
| 0/9 | 1/9 | 2/9 | 3/9 | 4/9 | 5/9 | 6/9 | 7/9 | 8/9 | 9/9 |

— Normally suitable.  Normally unsuitable.
— Marginally suitable. Blanks—Impossible combinations.

Figure 13.9 Combined coverage indexes. (Color codes shown are for destruction.)

| <u>Exposed personnel</u> | <u>Protected personnel</u> | <u>Wheeled military vehicles</u> | <u>Tanks and artillery</u> |
|---|--|--|--|
| <p><u>Primary:</u> Personnel in the open. Thermal effects not considered.</p> | <p><u>Primary:</u> Personnel in foxholes.</p> <p><u>Secondary:</u> Personnel in basements.</p> <p>Personnel in armored vehicles for yields less than 200 KT.</p> | <p><u>Primary:</u> Moderate damage to wheeled vehicles.</p> <p><u>Secondary:</u> Moderate damage to railroad cars, LVT's and DUKW's on land, truck mounted engineer equipment and missile and rocket launchers.</p> <p>Severe damage to radios, fire-control equipment and concertina entanglements.</p> | <p><u>Primary:</u> Moderate damage to tanks and other track mounted combat vehicles and artillery.</p> <p><u>Secondary:</u> Personnel in armored vehicles for yields of 200 KT or greater.</p> <p>Moderate damage to infantry weapons, track mounted engineer equipment and railroad locomotives.</p> <p>Severe damage to supply dumps, telephones, switchboards, double apron barbed wire, and highway, railroad and float bridges.</p> |

Figure 13.10. Target vulnerability categories.

By Order of the Secretary of the Army:

Official:

J. C. LAMBERT,
*Major General, United States Army,
The Adjutant General.*

EARLE G. WHEELER,
*General, United States Army,
Chief of Staff.*

Distribution:

Active Army:

CofSA (2)
VCofSA (2)
DCSPER (5)
ACSI (5)
DCSOPS (12)
DCSLOG (5)
Ofc Res Comp (2)
SGS (5)
COA (2)
CARROTO (2)
CINFO (1)
CNGB (2)
CRD (2)
CLL (1)
TIG (1)
TAG (2)
TJAG (1)
CMH (2)
CofCh (2)
USASA (2)

CofEngrs (5)
TSG (5)
CSigO (5)
CofT (1)
USA CD Agcy (2)
USCONARC (20)
USA Mat Comd (5)
ARADCOM (5)
ARADCOM Rgn (5)
OS Maj Comd (5)
OS Base Comd (5)
LOGCOMD (5)
MDW (2)
Armies (10)
Corps (10)
Div (10)
CO (5)
Bde (5)
Regt/Gp/Bg (5)
Bn (2)

USMA (2)
USAWC (5)
Joint Sch (2)
MFSS (2)
USA Ord Sch (10)
USACAS (1)
USWACS (34)
USAAVNS (1)
USAOGMS (36)
Hosp (1)
POE (5)
Engr Dist (5)
Div Engr (5)
Army Dep (1)
PG (2)
Arsenals (1) except Picatinny (2)
USA Corps (5)
MAAG (2)
Mil Msn (2)

NG: State AG (3).

USAR: Div (2).

For explanation of abbreviations used, see AR 320-50.

